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ON
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AND CHRONIC INTESTINAL DISEASE.

Delivered before the Sheffield Medico-Chirurgical Society

BY F. J. SADLER, M.D. OXF.,
PHYSICIAN TO THE BECKETT HOSPITAL, BARNSLEY.

I PROPOSE to touch quite briefly on the importance of two causes of the beginnings of ill-health, endocrine gland insufficiency and chronic diseases connected with the intestinal flora. In the matter of ill-health due to minor intestinal disorder the medical profession has worked empirically for centuries. Magnates of the Roman occupation of Britain were sent to Bath to rid themselves by purgation and dieting of the ill-effects of their gross feeding. In the seventeenth century Molière chaffed the French doctors for their dog-Latin and their universal remedies of purges, enemata, and bleeding; in the eighteenth century in England the profession re-discovered Bath for wealthy people, whilst in the nineteenth century the latter were sent to Carlsbad, Spa, Homburg, and similar places. In the twentieth century certain over-eating, under-exercising folk still feel an annual "cure" is essential, and our inland spas reap rich harvests from aperient waters and lavage of the colon, though bleeding is less fashionable than in the seventeenth century. I wish to suggest that the time has come to ask *why* treatment by purgatives and the super-enema is in many cases so successful, and whether intestinal poisoning may not be discovered in its early stages by the general practitioner and much minor ill-health prevented.

In three recent papers [1] all possible lines of attack on disorders due to chronic intestinal poisoning have been suggested as follows:—

1. Making good endocrine insufficiency, which may be the first cause of departure from health, by administration of thyroid, suprarenal, or other endocrine gland extracts.
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3. Neutralising the poisons which have passed into the blood by injecting various forms of protein, whether intravenously or otherwise (it is possible that the old-fashioned bleeding got rid of excess of antibodies present in the blood).

RESULTS OF ADMINISTRATION OF THYROID EXTRACT.

Everybody is now giving thyroid for the neurasthenic discomforts of the climacteric in women, so that I need only say (1) that I find a consensus of opinion that ½ gr. of the gland (or $\frac{1}{10}$th gr. of the B.P. dried extract) once daily gives the best results, and is safe from the risk of over-dosage; and (2) that dyspnœa on exertion is an early sign of over-dosage. In my own cases since December, 1918, among patients coming to my consulting-room, I find that I have ordered thyroid 63 times for nervous disorders of the climacteric, in 14 cases improvement has resulted, in 2 cases the treatment has been a failure, in 47 the result is as yet unknown; but the increasing number of my cases—some coming from as far away as Sheffield—point to improvement in many of these 47 patients. Among my own patients 14 improvements to 2 failures is about the right proportion. I have also ordered thyroid in 26 cases for neurasthenia in men and women, 11 known to have improved, 1 known failure, 14 result unknown. Thirty-five patients have been ordered thyroid as part of the treatment for chronic pains, &c. In 12 cases there has been improvement, in 3 failure, 20 cases result unknown.

The climacteric disorders of women are sometimes of State importance. In 1871, when Queen Victoria was 51 years old, Disraeli thought it necessary to defend the Queen for continuing the life of privacy she had led since the death of Prince Albert, because for reasons of health she was "physically and morally" incapacitated from performing her duties of ceremonial and pageant. A daily paper made a "stunt" out of the word "morally," interpreting the phrase as "physically and mentally" incapable: the interpretation contained an awkward half-truth, for to-day I have very little doubt that the thyroid insufficiency of the climacteric has mental as well as physical results. That is why the new possibility of relieving such disorders is so seriously important in many homes though they be not inhabited by kings and queens.

Unexpected Results of Thyroid Treatment.

It is, however, to certain unexpected results of thyroid administration to which I wish to call attention for elucidation and possibly research.

The first of these was a woman of 76 with arterio-sclerosis who, 18 months before I saw her, had had left hemiplegia. She was unable to sew, or knit, or stand alone, and in fact lay like a log in bed, being very stout, with great œdema of the legs; the latter were very tender—she screamed when they were moved—and she had been very deaf for six months. The liver was enlarged, the heart action irregular; from the roughness of the skin and the patient's general appearance I suspected that myxœdema was part of the trouble, and therefore put her on thyroid as well as suitable diuretics. There was polyuria with troublesome thirst in the third and fourth weeks of the treatment, which was so far successful that within three months the œdema had greatly diminished; the patient could then sit up on the edge of the bed to eat her meals, and enjoyed reading the paper, and—here came the surprise—her hearing was much improved. At the first visit the nurse had to speak into the patient's ear to ask my questions; three months later the patient could hear the sounds of housework proceeding in the adjoining room.

I have since persuaded a retired doctor of 85 years to experiment with thyroid for his deafness. The left ear, with nerve deafness, was not improved at all, as we expected; the right ear, which the patient thought was deaf by reason of Eustachian deafness, did not improve in hearing, though there was a slight remission of the discomfort caused by Eustachian obstruction.

Another man, aged 72, with arterio-sclerosis, was noticed by his wife to hear better while he was taking ½ gr. of thyroid twice a day; his hearing relapsed to the old condition when the thyroid administration was stopped.

A lady of 45, beginning with deafness due to Eustachian obstruction and having to be frequently politzerised, certainly improved her hearing by taking ½ gr. of thyroid at night, and required less frequent politzerisation.

That is as far as my personal experience has gone in this effect of thyroid treatment.

Another unexpected result of taking thyroid came about as follows:—

A widow, aged 66, consulted me in April, 1920, complaining of pain in her knees and dyspnœa on exertion. She was as big as a woman at the end of pregnancy or with a large ovarian tumour; the liver was enlarged, the legs were swollen and hard, and there was a trace of albumin in the urine. I made a diagnosis of myxœdema in addition to her other troubles, and put her on increasing doses of thyroid and diuretics. There was a decreased quantity of urine passed. After eight weeks' treatment, when she was taking 5 gr. of thyroid three times a day, one night without my advice she took 10 gr. of thyroid in place of 5 gr.; this was followed at once by a great increase in the amount of urine passed. A month later there was only a doubtful trace of albumin in the urine. The abdomen was so much reduced in size that she could put on her own stockings and shoes, her face was no longer puffy or swollen, she could go up and down steps without dyspnœa, and felt better than for the past ten years.

In both these cases it seemed to me that the thyroid treatment was responsible for increased diuresis which, of course, was in neither case the object aimed at in giving thyroid. In a case of acute parenchymatous nephritis in a boy of 10 the diuresis is markedly affected by the amount of thyroid given in 24 hours.

Col. R. McCarrison's conclusion as to "deficiency" œdemas [2] is interesting in this connexion. "It seems

[1] Brit. Med. Jour., 1918, ii., 705; 1920, i., 284 and 839.

[2] Brit. Med. Jour., 1920, ii., 238.

more probable that excess of adrenalin may reach the kidneys direct and interfere with the normal secretion of urine, thus favouring the retention of fluid in the tissues." If, as I believe, the secretions of the thyroid and of the adrenals are antagonistic, this conclusion is the converse of my own.

Thyroid Extract and Neurasthenia.

Two cases of neurasthenia in men of 30–35 years have been instructive to me.

The first was a R.N.R. assistant paymaster who had been manager of a branch bank in civil life. He came home from Haslar in September, 1917, a typical neurasthenic, emaciated with ataxic gait, a very bad stutter, loss of memory, inability to read or write or do accounts, with delusions of the "evil eye" and of enemies pursuing him. From September, 1917, to February, 1919, every kind of treatment was tried—nerve tonics, nerve sedatives, massage, electricity, suggestion, re-education, and all the rest of it—till Max Adeler's lines began to haunt me:—

> Four doctors tackled Johnny Smith,
> They blistered and they bled him,
> With squills and antibilious pills
> And ipecac they fed him.
>
> They stirred him up with calomel,
> They tried to move his liver,
> But all in vain—his little soul
> Was wafted o'er the river.

and when the patient got a bad attack of influenza in February, 1919, I feared the last two lines would come true. While I was examining his chest during this attack of influenza I realised that the tracheal rings were much nearer the skin than they should be, and I started thyroid treatment. Since that moment he has made steady improvement, put on two stones in weight, can walk five or six miles alone, instead of dreading to go out; enjoys smoking again, can talk, read, write, and work in the garden; continuous accounts day by day made his head ache, but less so since he began taking ichthyol, and I hope he will presently be able to resume his work in a bank.

The second case came to me in July, 1920. He is a miner, aged 34, and complained that for five weeks he had been getting more and more nervous especially when in the pit. On examination he seemed to me organically sound, but I thought the thyroid a little small and his pulse-rate was only 54 per minute. I put him on to thyroid ½ gr. twice daily, and treated some colicky pains he complained of with benzonaphthol. A fortnight later he informed me that after seven days of the thyroid treatment a sudden improvement occurred. He went back to work and his nervousness was so much better that when, two nights before, a fall of roof had trapped him and his mate in their working place he had persuaded his mate to go on cutting coal to be ready for the next day, by which time they were sure to be rescued.

I have also three cases of epilepsy in women from 35–55 whose fits have been reduced in number by thyroid administration. Another female patient of 29 avoids relapses into melancholia by taking 5 gr. of suprarenal gland substance daily. In this case the trouble began with enlarged thyroid.

CONNEXION BETWEEN ENDOCRINE INSUFFICIENCY AND INTESTINAL INTOXICATION.

There seems to be some close connexion between endocrine insufficiency and poisoning from intestinal absorption, and the results of using intestinal disinfectants in addition to aperients are rather striking. The flatulence and borborygmi of so-called nervous dyspepsia and of the neurasthenic give endless trouble to the general practitioner; having succeeded and failed with most of the intestinal disinfectants boomed during the past 30 years, I feel driven to the working hypothesis that the gas-producing organisms of the intestinal flora are stimulated to over-production by at least four kinds of organisms, which are discouraged by different antiseptics. Colonel A. F. Hurst's views do not seem to me to account for drug A succeeding when B, C, and D have failed, nor do I believe that every sufferer from flatulence is an aerophagist.

In the treatment of over 1000 cases of enteric over a period of 15 years I found that, as a rule, abdominal distension in the third and later weeks was much relieved by ¼th gr. doses of calomel. Murchison, who first clearly differentiated between typhoid and typhus, speaks of much larger doses being beneficial, but there are some typhoid cases who are not helped by calomel and even cannot stand it. For such a case, Dr. P. E. Barber first suggested to me benzonaphthol, which I have since found most useful in many cases of so-called dyspepsia; during the war, when it was unobtainable, beta naphthol proved a very poor substitute. Salol has its uses when calomel and benzonaphthol fail, while ichthyol, as recommended by Dr. F. J. McCann, when used as a supplement to thyroid administration, restores comfort to some of those who suffer from the nervous disturbances of the climacteric.

Treatment of Albuminuria.

There is one use of ichthyol which is of greater interest, and that is in cases of albuminuria. Danysz claims to have successfully treated cases of albuminuria, among other chronic diseases, by his anti-anaphylactic treatment of injecting killed intestinal organisms to neutralise the excess of antibodies which he believes to be produced in the body fluids by the constant passage of intestinal organisms, or of partly digested proteins, into the blood. If this hypothesis is even approximately correct, suitable intestinal disinfectants should diminish the numbers of the provocative organisms, and so diminish the poisons (antibodies or toxins, or what not) that keep the albuminuria going.

On this hypothesis I worked in the case of a man of 41 (A. W.), who was admitted to the Beckett Hospital on June 3rd, 1920, diagnosed as chronic parenchymatous nephritis with œdema of the right wrist of five weeks' standing, œdema of the feet for a fortnight, some œdema of neck and face, and 6 per 1000 parts albumin as measured by Esbach's test. The water test showed diminished diuresis and diminished alkaline tide. Dieting, rest, and the recognised forms of treatment reduced the amount of albumin present in the urine to 2 parts per 1000 on Esbach's scale by June 27th, but below this it declined to fall. On July 4th I started the man on ichthyol (2½ gr.) twice daily. On the 8th the Esbach reading fell to 1·5 for the first time. On the 10th the ichthyol was increased to 2½ gr. three times a day, and on the 11th the albumin fell to 1 on Esbach's scale. On the 24th I began a course of heterogeneous protein injections, using a preparation of *B. coli* for this purpose. Six injections at 48-hour intervals failed to reduce the amount of albuminuria any further, as the patient felt well and was discharged to continue with the ichthyol treatment as an out-patient. The boy mentioned above, with parenchymatous nephritis, whose diuresis was increased by the administration of thyroid, also finally got rid of his albuminuria within 48 hours of the ichthyol given being increased to 2½ gr. three times a day.

DANYSZ'S THEORY OF IMMUNITY.

This case brings me to Danysz's theory of immunity, anaphylaxis and anti-anaphylaxis, on which he founds his treatment of chronic non-infectious diseases, including urticaria vesiculosa, giant urticaria, eczema, both seborrhœal and moist, and psoriasis, asthma, hay fever, neurasthenia, debility with albuminuria, chronic albuminuria, dysmenorrhœa, menopause troubles, mucous colitis, enteritis due to intestinal toxins, chronic appendicitis with exacerbations, dyspepsia, obstinate constipation, gastroptosis, muscular rheumatism, and jaundice—a rather large range of diseases to claim as curable by the same method.

Leaving the theory of anti-anaphylaxis and the experiments on which it is founded to be read in Danysz's book by those who are interested, the conclusion arrived at is that some chronic non-infectious diseases can be cured, or at least much improved, by subcutaneous injection of heterogeneous bacillary proteins (Danysz) or by intravenous injection of peptone or heterogeneous bacillary proteins (Gow). Whether the working hypothesis is sound or not, empirically the treatment is in many cases successful.

The kind of protein used, the dosage, and the interval between injections are as follows:—

1. Danysz uses the intestinal micro-organisms which have grown most freely on agar at the end of 24 hours' incubation, and mixes them in proportion to the abundance of their growth, 90 per cent. of them being *B. coli*. His dosage is stated in terms of "microbial bodies dried ('à poids constant') at 60° C." His suspension contains 0·02 to 0·05 mg. of such dried microbial bodies in each cubic centimetre, and of this he injects 0·1 c.cm. to 1 c.cm. intramuscularly. His intervals vary from

1 to 7 days. In some cases of psoriasis he found it necessary to add a few drops of an anaerobic bacillus culture to the microbes which developed on agar before getting satisfactory results. Some cases of eczema were cured by giving 2 to 3 mg. of microbial bodies by the mouth daily. I confess to having had some slight scepticism about results obtained from oral administration, but Besredka's recent immunisation of rabbits at the Pasteur Institute by feeding them on killed *B. typhosus* after sensitisation by ox-bile makes me think my incredulity was due to my own ignorance.

2. Gow's intravenous dosage when he uses *B. coli* or *B. typhosus* is 25 million to 100 million killed bacilli suspended in 10 c.cm. of normal saline as an initial dose, slightly increased in subsequent doses. The intravenous injection of a 10 per cent. solution of peptone seems equally efficacious but decidedly more exciting to administer. Five to seven days is the interval mentioned.

3. I have been trying initial doses of 10 to 50 million killed *B. coli* injected intramuscularly or subcutaneously, and with an interval of 2 to 7 days, for arthritis, sciatica with lumbago, neurasthenia, chronic dyspepsia and debility, and bronchial asthma, with satisfactory results; but I failed with a case of chronic nephritis in which ichthyol did good, in a case of muscular rheumatism complicating empyema, and in a case which turned out to be infective endocarditis. I have also failed to effect any improvement in a case of Hodgkin's disease.

In a case of toxæmia of uncertain origin after intravenous eusol had failed to produce permanent improvement, although improvement followed each of three injections, the intervening negative stage caused such serious symptoms that I dare not continue the treatment. There is a negative stage mostly represented by some stiffness of the arm which passes off in 24 hours, but occasionally when the dose is big (say 400 to 1000 million bacilli) some constitutional disturbance with a rise of temperature to about 100° F. occurs. This also passes off in 24 hours. Marked improvement is not to be expected after the first or second injections, but after the third or fourth, if the treatment is going to be successful, the improvement will be quite marked.

4. I am told by Dr. N. A. Macleod, of Skipton, that in arthritis *B. typhosus* works just as well as *B. coli*.

I suggest, therefore, that at least two new methods of combating these non-fatal forms of ill-health are now available: (1) Endocrine gland administration, and (2) heterogeneous protein injections, with a reasonable basis for their use; not as substitutes for the old methods, but as powerful auxiliaries.

Conclusion.

My present conception of the position is as follows. In chronic non-infectious disorders the old nerve sedatives and nerve tonics will continue to be valuable, while endocrine deficiencies *must be looked for* and made good. After eliminating pyorrhœa and carious teeth and other possible sources of infection the errors of the intestinal flora must be considered and the intestinal disinfectant which best deals with the error present has to be searched for by trial. Lastly, we have now additional means of dealing with the poison, toxin, excess antibody—call it what you will—when it has passed into the blood and is producing nerve symptoms, muscular pains, or skin lesions.

There seems a great opening for team-work in this connexion, say a pathologist to grow the most suitable organisms and prepare the necessary emulsions after seeing the patient, a surgeon interested in nasal work to eliminate pyogenic infections of nose and throat, a gynæcologist to eliminate local infective conditions, and general practitioners to administer the injections and look after the general health, and, most important of all, an eminent consulting physician to direct the research. The St. Andrews Institute has given us the model, with two meetings a week to discuss cases and report progress, under the chairmanship of Sir James Mackenzie. Cannot others do likewise?

MODERN METHODS OF RESEARCH IN CARDIOLOGY:

A CRITICISM.

BY I. HARRIS, M.D., L.R.C.P. & S. EDIN.,
PHYSICIAN IN CHARGE, CARDIOGRAPHIC DEPARTMENT, NORTHERN HOSPITAL, LIVERPOOL.

IT is the boast of the leader of a school of cardiology that he is dealing with facts and not theories. Indeed, modern scientific contributions on heart disease are made up of tables laboriously compiled, of minute measurements, of mathematical calculations. The accurate methods of physical science have been made applicable to the solution of problems in pathological biology. The object of this short article is to show that this method more often than not is quite unsuitable for research in clinical phenomena. Biological questions are too complicated, and there are too many sides to them to find a true expression in a simple formula. Hence, as is often the case, this method leads to more absurd conclusions than deductions derived merely from subjective observation, which are not quite exact, it is true, but which are elastic enough to take account of the many-sidedness of a problem. I will give the following two instances to illustrate my thesis. One is the circus theory lately elaborated by Sir Thomas Lewis and his coworkers for the purpose of explaining the nature of flutter and fibrillation; the other is concerned with an explanation of the mechanism underlying cardiac asthma.

The Circus Theory.

The circus theory[1] was not originated by the school in question—the discovery of original ideas has never been a strong point with this school—but Sir Thomas Lewis and his fellow workers have spent a prodigious amount of labour in establishing and elaborating it. The theory is based on the following fact: If a ring of muscle is stimulated at a given point an exciting wave is started, which travels in both directions from the point where the stimulus has been applied, till both crests meet in the opposite direction from where they started. As soon as this happens the whole wave comes to an end, owing to the fact that the crests find a bar to their further progress by the refractory condition of the tissue. If, however, when the stimulus is applied, one side of the ring contains tissue which is at the moment in a refractory condition the exciting wave will travel in one direction, the direction where it finds no bar to its progress. By the time the wave reaches the part of the ring which was refractory before, the latter has sufficiently rested to permit the passage of the exciting wave. The circus movement is now established. Wherever the wave travels it meets tissue which has recovered from the refractory condition and is therefore able to proceed round and round the ring ad infinitum.

The authors set themselves the task of proving by means of experiments on animals that this is actually the mechanism underlying clinical flutter and fibrillation. The plan of the investigation was first to produce flutter and fibrillation in animals and afterwards to map out the path the exciting wave travels along the auricle, by means of cardiographic tracings. *High frequency stimuli* were applied to a certain part of the auricle and then withdrawn. The after-effect of the stimulation in some animals resulted in flutter and fibrillation. It was found that flutter lends itself better to this method of research than fibrillation. Even in flutter, and in their most successful experiments, they have not managed by direct evidence to trace a complete circus movement. Some of their experiments—we do not know how many—are actually against the theory of the circus movement, such as observation 5,[2] which was only possible of bringing into line with their theory by making an unwarranted assumption.

So far as fibrillation is concerned the evidence brought forward to prove a circus movement is based on an even more slender foundation. It is very difficult

to map out a circus wave in the fibrillating auricle. One of the strongest reasons they brought forward in order to prove that the mechanism underlying fibrillation is a circus movement is the close relation which existed between flutter and fibrillation. The latter, according to the authors, is nothing else but a high degree of impure flutter. Therefore the mechanism which underlies one rhythm must also be the base of the other. Since, however, both differ from each other in a vital point, so far as the problem before us is concerned—the one being a regular rhythm, the other not—this argument is not quite convincing. A system of local blocks which constantly appear and reappear was assumed, complicating still further the mechanism of fibrillation as expounded by the authors.

The text is full of laboured and involved explanations, of sub-explanations, and copious footnotes, of conclusions based on "assumptions," "probabilities," "almost certainties," &c. There is no difficulty at all in showing that the experiments do not prove the thesis the authors claim to have established. However, for the moment, let us accept the interpretation of the tracings as given by the authors.

It is important to keep in mind that in the experiments calculated to bring about flutter the stimuli applied for that purpose were of *a higher frequency than that which flutter itself exhibits*. It is only stimuli of a higher frequency than flutter which produce in one part of the auricle a somewhat longer refractory period than at another, with the result that favourable conditions are created for the establishment of the circus movement. Once the stimuli are withdrawn and the flutter rhythm is established, the *refractory periods in all parts of the auricle are normal*. In fibrillation, too, the localised "blocks" are not the cause of the abnormal rhythm, but the effect. The cause of the fibrillation is the same as of flutter.

It is clear that whilst the auricle is in a condition of actual flutter or fibrillation, the causes which *brought about* this condition have disappeared. *In every respect the auricles are normal!* Just because once upon a time a certain point of the auricle showed for a moment a somewhat longer refractory period than other parts, the circus movement came into existence; once it came into being it continued ad infinitum, although the auricle is perfectly normal in every respect. Hence, in order to abolish flutter and fibrillation all that is required is to interrupt the circus, say, by means of a fresh stimulation, and the normal rhythm is restored again!

There can be no doubt that exactly the same mechanism which according to the authors underlies experimental flutter and fibrillation is, according to them also, the basis of clinical flutter and fibrillation. All the theory would be meaningless without such an assumption. In clinical as well as experimental flutter and fibrillation, the *causes which produce the abnormal rhythm no longer exist once it is established*. It follows from it that the abnormal rhythm can be abolished, once one succeeds in interrupting the circus movement. The matter is so important that I should like actually to quote the authors. After Sir Thomas Lewis has explained that the path favoured by the "mother" circus (the central path movement) "is shielded in certain circumstances from interference," he goes on to say: "It would appear that the treatment of auricular flutter in the human subject (which might be suggested) by attempting to break up the circus movement with induction shocks cannot be regarded as offering hope of *invariable success*."[1] It is clear he thinks it is possible to cure clinical flutter and fibrillation by the simple method of interfering with the circus. This is also most clearly stated in his first Oliver Sharpey lecture. Speaking of treatment, he says, "If by any means we could close the gap (between the crest of the wave and the wake) we could bring flutter to an abrupt termination." In fact, he seems to think that the path of future investigation in regard to treatment of this condition lies in this direction.

Those who have not read the original articles in "The Heart" can hardly realise the full meaning of this theory. We know that clinical flutter may last for years. Just because, say six years ago, for a fraction of a second one part of the auricle showed a slightly longer refractory period, an abnormal rhythm was established which continued for all these years without interruption! We know it is not difficult to terminate such a circus movement—an extra-systole in the "mother" circus would do it, and extra-systoles are common enough in all types of heart disease; we know the conductivity varies from time to time as in clinical block. This, too, would interrupt the circus; and yet there is no instance on record of such a spontaneous "cure."

In auricular fibrillation, we are told, the auricle exhibits local blocks, which appear and disappear incessantly. Yet it never seems to happen that a local block is ever strong enough to interrupt the circus and so terminate the abnormal rhythm. Of the thousands of cases of auricular fibrillation which exist in this country alone, how many established cases of this abnormal rhythm have ever been cured? (I am not dealing here with paroxysmal fibrillation.) Where in the whole of medical literature is there a parallel to such a fantastic conception of a biological phenomenon? To be sure there is a flaw somewhere in this theory. We have seen in the experiments it was stimuli which produced flutter and fibrillation. What are the factors which take the place of the artificial stimuli in the clinical condition of abnormal rhythm? Sir Thomas Lewis does not give us any information at all in regard to this point. In an investigation which concerns itself with the discovery of the nature of fibrillation, the most vital factor, which might have given us an insight into the mechanism of this disease, is completely left out of account! However, we know something about it from clinical and pathological experience.

I shall limit my remarks to fibrillation, because everyone interested in heart disease has a large experience of this malady. We know certain types of valvular disease favour the appearance of fibrillation, mitral stenosis, for instance. In this form of heart disease the auricle is subject to a great strain, and before fibrillation appears it is usually greatly hypertrophied and the cardiographic tracing shows accordingly an over-developed P wave. The different stages of development of this disease which leads up to fibrillation and heart failure do not differ from any other type of heart failure. First, we have compensatory hypertrophy and then the muscle becomes damaged ("myocarditis"), which results in heart failure. Clinical evidence points to the fact that fibrillation is due to a damaged auricle, owing to overstrain.

If a working hypothesis is necessary, the following theory would explain the condition in conformity with clinical and pathological evidence. In the normal heart muscle all fibres are functionally continuous, so that a stimulus excites all fibres. (This is not the case with skeletal muscle.) There doubtless exists some anatomical structure in the heart muscle which effects a connexion between one fibre and another, so that the whole heart becomes functionally like one fibre. It is possible before fibrillation appears that some of the structural or functional connexions become damaged, as a result of factors mentioned above. Under the circumstances single or whole blocks of fibres become functionally disconnected. The exciting waves do not need to have a multiple origin, but start as a single wave, say from the normal pace-maker. It will pass to some bundle of fibres in the neighbourhood; from there it will travel in every direction where a "bridge" renders further progress possible. The same wave will affect first one bundle and afterwards another. Its path will be irregular, zig-zag shaped; it might even form a circus for a while. But while the first wave is still lingering in some outlying districts of the auricle, a new wave may already have started from the same place as before.

Instead of the auricle being a functional entity, it consists now of a large number of separate structures, each receiving stimuli from the other. Each of these structures, however, would send a stimulus to the ventricle. One might or might not accept this hypo-

thesis. One thing is certain. Fully established fibrillation is due in majority of cases to permanently damaged muscle or other structure of the heart. It is therefore unreasonable to assume, as Sir Thomas Lewis does, that once one succeeds in interrupting the circus movement a normal rhythm will be restored. The cause which originally brought about this condition remains potent all the time the abnormal rhythm continues. The disturbance of functional continuity of the heart muscle in some instances may be due to a slight derangement, which may be effectively treated by a simple remedy. In the majority of cases, however, it is probably based on some myocardial trouble. In order to restore the normal rhythm, we would have to repair a damaged muscle, an infinitely more difficult task to perform than the mere interruption of the circus. The discovery of a remedy for this condition does not, therefore, lie in the direction suggested by Sir Thomas Lewis. Only by adopting measures which shall prevent the overstrain of the auricle, we might possibly succeed in making the condition less common than it is now. This is one instance where a great number of tables only served to obscure the issue. If the problem had been approached not only from the electrical but also from the clinical and pathological point of view, the conclusion arrived at would probably have been more in conformity with the actual mechanism of this affection of the heart.

Cardiac Asthma.

According to Sir Thomas Lewis and his co-workers, cardiac asthma[3] is due to an acidosis of the blood, caused by defect in renal function. In order to prove this contention the blood and alveolar air of patients exhibiting this defect have been subjected to a very complicated analysis. The experiments, which were of a very difficult nature, have been carried out with great care and skill, by a number of investigators who are experts in their particular line of research. Within narrow limits the paper is certainly interesting. It proves that we may have dyspnœa without an increase in the CO_2 content of the blood, and that we might have an acidosis which is neither due to carbonic nor lactic acid. But it cannot be said, by the widest stretch of imagination, that the authors have succeeded in proving that which at the outset they intended doing—namely, that the acidosis is the *cause* of cardiac asthma. As we shall soon see, acidosis is probably the effect underlying the clinical condition of asthma and not the cause.

Although the paper contains numerous references to pathological and clinical findings, yet this material has not been made use of when the conclusion was promulgated. Here, too, it would be best to keep in mind the clinical and pathological facts which are associated with cardiac asthma. Sclerosis of the coronary arteries is so constant in this condition that it is hardly fair to disregard this fact altogether. Clinically, too, the only conclusion one can arrive at is that cardiac asthma is a condition of acute heart failure. The symptoms are in a great number of cases those of failure. Cases subject to this attack show a great deal of sclerosis and often a high blood pressure. The clinical symptoms and pathological findings suggest the following simple explanation in regard to the causes which gave rise to asthma. The coronary arteries are sclerotic. An increase of pressure in the coronary arteries is necessary in order that an efficient circulation should be maintained in the heart muscle. The high pressure usually associated with this condition is probably compensatory in nature.

Now, when a patient is at rest at night, for well-known reasons the pressure in the coronary arteries is lower than during the time the patient is active. It might therefore fall to a lower level than that necessary to maintain an effective circulation, with the result that heart failure sets in. Is it not a reasonable assumption which conforms with similar phenomena that acidosis is the effect of the heart failure and not the cause? Surely it is a little strange that in such a painstaking investigation it was not attempted to bring the most striking fact of all in connexion with the disease into conformity with the conclusion arrived at. I refer to the pathological condition associated with this affection—disease of the coronary arteries. Where does this fact come into the scheme of their theory? Why does the prognosis of these cases depend on the condition of the heart muscle?

Their control experiments are quite unconvincing; they compared cases which exhibit only a slight degree of dyspnœa with patients suffering from severe attacks of acute heart failure! In a matter of this sort the degree of dyspnœa is the all-important factor, as they are fully aware, since even in exertion the kind of acidosis depends on the degree of exertion. The matter is of great practical value. If acidosis be the cause of cardiac asthma, all that is necessary is to treat for acidosis. As a matter of fact, the only treatment of value in these cases is the one which concerns itself with improving the circulation in the heart. It has certainly not been proved that cardiac asthma is due to acidosis.

But to return to my thesis. The elaborate tables published by investigators, which give one the impression of exactness and solidity, only serve to mislead one in regard to the value of the conclusions based on them. Vital phenomena are very complicated. There are many links in the chain of a pathological condition; all of them will have to be traced before a true insight into the mechanism of an abnormal function can be obtained. At the best the method of investigation in question can only deal with a fraction of the problem, with a subordinate fact, leaving great gaps unexplored, which are usually bridged over by arbitrary assumptions.

PS.—After this article had been written, some further observations appeared in regard to flutter and fibrillation. They, however, do not affect the criticism as expressed in the above lines.

References.—1. Heart, vol. vii., No. 4. 2. Ibid., vol. vii., No. 4, p. 328. 3. Ibid., vol. v., 1913-14.

ADRENALIN IN THE STOKES-ADAMS SYNDROME.

BY ARTHUR G. PHEAR, C.B., M.D. CAMB., F.R.C.P. LOND.,

PHYSICIAN TO ROYAL FREE HOSPITAL; CONSULTING PHYSICIAN TO ROYAL HOSPITAL FOR DISEASES OF THE CHEST;

AND

JOHN PARKINSON, M.D., M.R.C.P. LOND.,

ASSISTANT PHYSICIAN TO LONDON HOSPITAL; PHYSICIAN TO OUT-PATIENTS, NATIONAL HOSPITAL FOR DISEASES OF THE HEART.

IN a woman of 49 with complete heart-block, who was under observation for seven days and nights, severe Stokes-Adams attacks were recurring almost every minute. The subcutaneous injection of adrenalin was followed by complete cessation of the attacks within 15 minutes. It seems probable that only in isolated cases will such a beneficial effect be obtained as is here recorded, but a trial should be made of a subcutaneous injection of five minims (0·3 c.cm.) of adrenalin (1 in 1000), and if this fails, larger doses of 10–30 minims should be used. The case was as follows:—

History.—Mrs. H., aged 49, married, was in good health until about July, 1919, when she fainted and fell, cutting her head. Two or three months later she began to have fainting attacks at irregular intervals varying from three to 20 days; in the course of these she collapsed completely with loss of consciousness for a period varying from 30 seconds to three minutes; she has been seen to twitch during an attack, and twice passed water; she has occasionally hurt herself as a result of falling, but has never bitten her tongue or foamed at the mouth. She has felt perfectly well during the intervals. For three months previous to admission to hospital she was free from these attacks; they began to recur, however, on July 6th, 1921, and were accompanied by considerable mental distress and acute pain in the occipital region.

Condition on Admission.—On July 15th she was admitted to the Royal Free Hospital, where she was found to be suffering from frequently recurring attacks, of which the following were the main features in their order of sequence: 1. The patient becomes pale and loses consciousness; during this period, which lasts from 10 to 13 seconds, there is neither pulse perceptible at the wrist, nor impulse at the

apex. 2. In the second phase the pallor is rapidly replaced by a deep red flush with a slightly cyanotic tinge; the radial pulse reappears, and at the same time there are twitching movements involving the face-muscles, hands, and forearms; the legs are often drawn up and occasionally twitch. This period lasts about five seconds, during which consciousness is regained; but with returning consciousness the patient suffers from considerable mental confusion, failing to recognise her surroundings, and being oppressed by a vague sense of calamity. 3. Rapid recovery follows, and for a short period of one and a half to two minutes she is fully conscious and alive to her surroundings, answering questions intelligently; the colour is good, and the radial pulse slow, regular, and of fair volume. The whole cycle of events lasts two minutes, slightly more or less, and is then repeated.

The rate of the ventricular beat as timed by the apex beat and the radial pulse was 26 on admission, and varied very little during the whole stay in hospital; the average rate was 26–30; the lowest recorded was 20 and the highest 36. The pulse was of fair quality and quite regular. Over the large cervical veins a small but distinct pulsation could sometimes be observed at a rate about 70 a minute, independent of the impulse at the apex. The arteries were not thickened; the systolic blood pressure was 154. The heart was not enlarged; the apex beat was in the normal position and of moderate force; a soft systolic murmur was audible over the mitral area. There was no œdema, and none of the usual signs denoting myocardial insufficiency were in evidence. The patient was well nourished, and, except for a small amount of albumin in the urine, which was not constant, there was no evidence of disease of any other organ. The temperature was normal throughout. The Wassermann reaction was negative, and there had been no miscarriages or other evidence of syphilis.

Continuance of Periodical Attacks.—From July 15th to the 21st the periodical recurrence of ventricular standstill with its accompanying phenomena continued at almost regular intervals during day and night, the only important change being a shortening of the period of ventricular activity, which became reduced to 40 or even 30 seconds. Various drugs, including bromides and caffeine, were given without effect; chloral, however, appeared to control the twitchings and to ease the mental unrest. On two occasions atropine, gr. 1/100, was administered, the immediate effect being a definite diminution in the severity of the symptoms without any change in the frequency of the attacks; but the improvement was maintained only during two or three attacks, and was followed by a reaction, with more severe symptoms and enhanced mental distress.

Injection of Adrenalin.—At 10.50 A.M. on July 21st, 5 minims (0·3 c.cm.) of adrenalin solution (1 in 1000) were injected subcutaneously. The accompanying table shows the frequency and duration of the attacks immediately preceding and following the injection of adrenalin. As shown, 15 minutes later the attacks ceased, and there was no recurrence during the remainder of the patient's stay in hospital—i.e., four weeks—except for a slight attack a few hours after the injection. At 5 P.M. on the same day a second injection of adrenalin, 10 minims (0·6 c.cm.), was given subcutaneously. During the evening there was a severe paroxysm of dyspnœa with cyanosis which lasted for five minutes, and a similar paroxysm occurred 12 hours later; in both paroxysms consciousness was unaffected. For three weeks subsequent to the first injection the highest pulse-rate recorded on the four-hourly chart was 32 and the lowest 24 a minute. These rates do not differ from those recorded in the days preceding the injection, and by polygraph between the recurring attacks.

Table showing the Effect of Adrenalin.

10.40 A.M.		10.50 A.M.*	
Ventricle inactive.	Ventricle active.	Ventricle inactive.	Ventricle active.
20 seconds	40 seconds	25 seconds	40 seconds
25 ,,	45 ,,	15 ,,	45 ,,
15 ,,	40 ,,	25 ,,	40 ,,
20 ,,	40 ,,	15 ,,	50 ,,
20 ,,	40 ,,	30 ,,	40 ,,
20 ,,	40 ,,	23 ,,	40 ,,
20 ,,	40 ,,	20 ,,	35 ,,
20 ,,	50 ,,	15 ,,	35 ,,
20 ,,	45 ,,	20 ,,	35 ,,
15 ,,	40 ,,	20 ,,	55 ,,
		20 ,,	45 ,,
		15 ,,	45 ,,
		20 ,,	40 ,,
		10 ,,	40 ,,
		15 ,,	40 ,,

* 10.50 A.M.—Inj. adrenalin (1 in 1000), ℥v. (0·3 c.cm.), subcutaneously.
11.5 A.M.—The attacks (ventricle inactive) ceased completely.

Discharge from Hospital.—The patient was discharged on August 15th, 1921, free from attacks. During September the average pulse-rate was 23, the lowest record being 20 and the highest 26. She experienced frequent dizzy attacks and several short faints on two occasions, but no serious attacks until November, when she ceased to attend and was treated at home, apparently for cyanotic attacks—"black fits"—without loss of consciousness. She was last examined on Jan. 12th, 1922, a fortnight after one of these paroxysms. Complete heart-block was again shown on the electrocardiogram. The blood pressure was 150 systolic and 70 diastolic. Radioscopy showed slight general enlargement of the heart and an apex beat just beyond the mid-clavicular line.

Description of Figures.

FIG. 1 reproduces a portion of the polygram obtained on July 19th, 1921. The whole of a Stokes-Adams attack is shown. After five regular radial beats at the rate of 32 a minute, with a jugular curve of complete heart-block, the pulse disappears owing to ventricular standstill. On the jugular curve a few auricular waves (*a*) are still seen, but they are soon lost on the curve now recording respiration. Fifteen seconds after the onset of ventricular standstill consciousness is lost, and a movement on the lower curve (*) marks the coincident relaxation of the arm. A moment later the respiration becomes stertorous, and its rate increases from 30 to 50 a minute. Then convulsions appear, shaking the hand and neck, which are still connected with the polygraph. Immediately afterwards, and 25 seconds after the onset, the first radial beat returns. The first two or three beats are at a lower rate, but the original pulse-rate is almost reached by the end of the record. Meanwhile consciousness is regained, though the neck muscles are still contracted so that the jugular curve only reappears in the last portion of the record.

FIG. 2 is a direct continuation of the polygram shown in Fig. 1. It illustrates the frequency of the recurring attacks, for the second attack follows the first after a very short interval (35 seconds) of ventricular activity. Unlike the first attack (Fig. 1), the second attack is immediately preceded by some ventricular slowing as seen in the gradual widening of the six antecedent radial beats.

FIG. 3 shows an electrocardiogram taken after the attacks had ceased. It confirms the presence of complete heart-block, which is indicated on the jugular curve of Figs. 1 and 2. The auricular complexes (*P*) are completely dissociated from the ventricular complexes (*R-T*), and they are far more frequent. A. 72. V. 25.

Discussion.

The experimental and therapeutic action of adrenalin upon the blood pressure is well known, and the effect upon the heart itself is often considered only in relation to the vaso-constrictor effect. But adrenalin influences the heart both through the sympathetic and through the vagi. In animal experiment there is *acceleration of the heart* due to stimulation of the accelerator nerves in the heart muscle (the myoneural junction). A secondary (or a relative) slowing of the heart may, however, occur, and this is due to excitation of the vagus centre by the heightened blood pressure. It is evident from the literature that the effect on the heart varies greatly with the dose administered and with the mode of administration, whether subcutaneous or intravenous. In any case it is agreed that slowing does not occur if both vagi are cut; the main cardiac effect is sympathetic, there is acceleration of rate, and there is sometimes an alteration in conduction from auricle to ventricle.

Kahn,[8] in 1909, recorded with the electrocardiograph complete heart-block produced in a dog by a maximal intravenous dose (0·1 mg.). Both auricular and ventricular rates were concurrently raised, so that no bradycardia resulted. In addition, aberrant ventricular complexes and frequent premature ventricular contractions were recorded. Cullis and Tribe,[9] in studying the distribution of nerves in the heart of cats and rabbits, found the action of small doses of adrenalin almost identical before and after section of the bundle. There was acceleration with augmentation of the beat both of auricle and ventricle, showing that the ventricle is well supplied with sympathetic nerve-endings. Egmond,[6] in dogs with experimental complete heart-block, found that acceleration of both auricle and ventricle resulted from intravenous injection of 0·1 c.cm. suprarenin hydrochl. (Höchst). In one observation the ventricular rate increased from 30 to 45 a minute. Routier[12] produced complete heart-block in dogs by direct crushing of the A.-V. bundle, and then injected 1/20 mg. of adrenalin

intravenously. The primary effect, in about 25 seconds, was acceleration of both chambers; and the secondary effect, 20 seconds later, was entire disappearance of the heart-block (déblocage) for 25 seconds. This effect was reproduced three times on the same animal. He refers it to stimulation of the sympathetic terminations in the A.-V. bundle, and noting that clinical cases of complete heart-block are recorded where unblocking spontaneously occurs, he suggests a trial of adrenalin in human heart-block. Hardoy and Houssay [7] were unable to obtain experimentally the unblocking which Routier recorded. After an intravenous injection of 0·2 c.cm. of adrenalin (P. D. & Co., 1 in 1000) into a dog with crushed A.-V. bundle, premature ventricular contractions appeared, and then both auricle and ventricle were accelerated but without affecting the block. Similarly, Clerc and Pezzi [2] failed to re-establish by adrenalin the normal rhythm in animals after section of the A.-V. bundle.

Experimental work, therefore, shows that adrenalin accelerates the ventricle as well as the auricle, even when complete heart-block is present. By a moderate dose Routier removed experimental block, and though this has not been confirmed by other workers, there is clinical evidence (as will be seen) that it can occur. In patients with heart-block there are a few recorded observations on the effect of adrenalin. In Danielopolu's and Danulescu's [4] case of complete heart-block the ventricular rate rose from 30 to 40 within 20 minutes after a subcutaneous injection of 1½ mg. of adrenalin, and from 26 to 45 within 30 minutes after 2 mg. The auricular rate also increased, though without relation to that of the ventricle, and no unblocking was observed. In their case of partial (2 : 1) heart-block,[5] 1½ mg. subcutaneously reduced the degree of block so that only an occasional ventricular beat was dropped. At the same time both auricle and ventricle accelerated, the original rate and ratio of A.-V. : 94 : 47 becoming A. and V. 127. Numerous premature contractions, chiefly ventricular, were also produced (cf. Roth[10]).

In Hardoy and Houssay's [7] clinical case with complete heart-block, a subcutaneous injection of 1 c.cm. of adrenalin (P. D. & Co., 1 in 1000) had no effect either on the block or on the rate of the pulse. An *intravenous* injection of the same dose gave rise to disquieting symptoms with great acceleration of auricle and ventricle, yet without change in the block. Similarly, Lutembacher [9] in a case of complete heart-block saw grave symptoms, including syncope, after an intravenous injection of 2 mg. of adrenalin (Clin). In another patient with complete heart-block, an intravenous injection of 1/10 mg. was followed in sequence by premature ventricular contractions, ventricular tachycardia (cf. Rothberger and Winterberg[11]) and a ventricular pause with syncope. The pulse remained at 16 a minute for a week after this injection, one-half its original rate before any medication. Arrilaga[1] obtained acceleration of both ventricle and auricle in six cases of complete heart-block by subcutaneous injection of 1 mg. of adrenalin, but no modification in block was observed on the electrocardiograms. Strisower [13] obtained a positive result in a man of 82 with complete heart-block. After a subcutaneous injection of 0·5 c.cm. of adrenalin (1 in 1000), the ventricular rate rose from 28 to 84 in half an hour, and next day the electrocardiogram showed a normal rhythm. A month later, when 2 : 1 heart-block was present, a smaller dose (0·25 c.cm. of 1 in 1000 adrenalin) doubled the ventricular rate and restored the normal rhythm, though only for a few minutes on this occasion. This author refers the effect to sympathetic stimulation, while suggesting that improved coronary circulation as a result of the adrenalin may also be a factor.

This clinical evidence shows that it is possible for partial block to be reduced, and for even complete heart-block to be abolished, by subcutaneous injection of adrenalin; though often it fails to modify conduction, as one might expect from the nature of the pathological lesion usually present in such cases. An

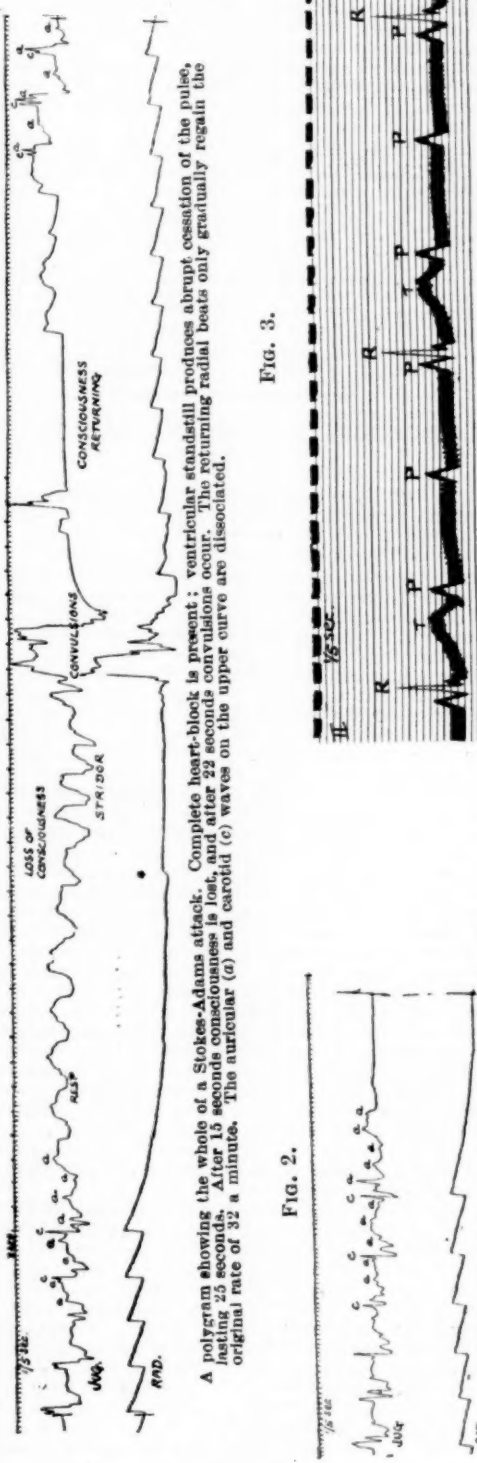

FIG. 1.

A polygram showing the whole of a Stokes-Adams attack. Complete heart-block is present; ventricular standstill produces abrupt cessation of the pulse, lasting 25 seconds. After 15 seconds consciousness is lost, and after 22 seconds convulsions occur. The returning radial beats only gradually regain the original rate of 32 a minute. The auricular (*a*) and carotid (*c*) waves on the upper curve are dissociated.

FIG. 3.

An electrocardiogram, obtained after the attacks had ceased. Complete heart-block. P = Auricular systole; R-T = Ventricular systole. A., 72; V., 25.

FIG. 2.

A polygram, the direct continuation of Fig. 1, showing the onset of a second attack 35 seconds after the first. The radial pulse gradually becomes less frequent before it disappears (cf. Fig. 1).

increase in ventricular rate, however, is usually obtainable despite the block. This alone is a sufficient ground for an extended trial of adrenalin in Stokes-Adams attacks, where the immediate cause of the loss of consciousness is usually extreme ventricular slowing and standstill. In the case here recorded we are not in a position to state that any change in the complete block resulted, nor yet that the ordinary ventricular rate was accelerated. But the ventricular standstill determining the seizures was apparently abolished by its influence.

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THE SUCTION DIFFICULTIES OF YOUNG INFANTS.*

BY H. C. CAMERON, M.D. CAMB.,
PHYSICIAN TO THE CHILDREN'S DEPARTMENT, GUY'S HOSPITAL.

1. *The Infant as a Suction Apparatus.*

IN breast-feeding the main difficulties in the first weeks of life are mechanical. Only when the natural diet is left and unnatural substitutes are employed do we meet with primary inability to digest. The young baby has but one function. It acts as a sort of suction apparatus, the efficiency of which varies for many different reasons. I propose to discuss with you some of the causes which commonly interfere with effective suction, and to indicate how I think they may be controlled. In the later months of lactation maternal factors play a more and more important part. In the first establishment of the milk, in the all-important first weeks of lactation, the factor which decides between failure and success is the suction power of the infant. With persistent and regular suction which completely empties the breast the yield increases, with inefficient suction and incomplete emptying of the breast it declines. If two infants are nursed the amount secreted is double. If a tiny premature child is placed at the breast of a wet nurse which till then have been secreting a litre of rich milk in response to the vigorous suction of an older child, within a few days the amount and quality of the milk has adjusted itself to the lesser demand. The infant wins its own sustenance by its own efforts. In these early days the mother's part is confined to the provision of a nipple sufficiently well-formed to permit of the secure attachment of the suction apparatus. So formulated the problem sounds easy enough. That it is in reality very difficult is shown by the frequency with which failure is encountered among mothers anxious to nurse their babies.

As medical men, we can have no doubts as to the dangers of artificial feeding, but in the nature of things we cannot expect mothers to be equally convinced. The danger is, of course, a diminishing risk as the age of the child increases. Profound intolerance for all sorts of artificial food is in general found only in young infants under 3 months of age. Anyone who extols a particular method of artificial feeding must show its value in the very young infant. The tolerance of older children for all sorts of food may be very high. But even among very young infants the artificial diet will only occasion disaster in a comparatively small number. Nine out of ten will pass through the danger without distressing disturbance, one only will go in risk of its life. The suction difficulties of breast-fed infants are so frequent that in these cases the abandonment of the breast and the substitution of the easily flowing bottle will in the great majority of instances appear to have achieved a striking success. It is not surprising that the mothers of such infants, ignorant of the risks that have been run, add themselves to those who denounce breast-feeding as a troublesome and unsatisfactory process. It is very important that we should detect the cause of the failure of suction power and, if possible, remedy it.

As a suction apparatus the faults of even a healthy new born infant are obvious enough. Suction is apt to be halting, feeble, and incoördinate. And this at a time when the breast is most stubborn and difficult. The strong, effective suction of an older child is not achieved at once. Aerophagy and distension of the stomach with wind is a very common result of these early and ill-controlled efforts. The mother's device of holding the child upright—as can be well seen on X ray examination—brings the air in the stomach immediately under the œsophageal opening and makes possible eructation without regurgitation of the milk. Wind is one of the results of incoördinate suction, though here again the tendency has been to explain it as due to some fault in the quality of the milk secreted. Older children at the breast only suffer from wind when their suction has been too eager and excited, as often happens when they are put to the breast after crying.

2. *General Management of Suction Difficulties.*

For the first month of life we must often be content to wait in the confident expectation that the child's dexterity in suction will rapidly increase. If progress in this respect is apparent a stationary weight curve need occasion no alarm. I believe that to supplement the breast by artificial food is, under these circumstances, the last resource to be adopted and not the first. If food is given from a bottle the child takes the line of least resistance and ceases to apply itself whole-heartedly to its difficult task. Mixed feeding, a device often highly successful in later lactation, seldom has any other end but complete weaning when adopted as an attempt to overcome the suction difficulties of early lactation. To be successful it should result in the re-establishment of breast-feeding. The baby must be put to both breasts at three- or four-hourly intervals. After the infant has done its best, the breast pump should be used vigorously and the milk so expressed should be given with a spoon. The position in which the child is held is of great importance. It is essential that the mother's body should be inclined forward at such an angle that the breast is pendulous and that the nipple falls directly towards the child's mouth. The infant should not be held up to the breast while its body is hitched in this direction or that by the anxious efforts of the mother to assist it to get a better hold. It is best for the child to lie on a pillow, laid on the mother's knee, as she sits on a low stool or chair, the seat of which slopes a little downwards from before backwards. With one hand the mother steadies the head, with the other she moulds the breast so as to make the nipple fall towards the child's mouth. There is generally need for extra warmth. Until the milk-supply is adequate it is a function of all mammalian mothers to approximate the unstable temperature of their young to their own, by the close contact of their bodies. Hot bottles may be necessary and clothing which lies close enough to prevent the access of cold air to the air space around the infant. Anointing with olive oil and bandaging the limbs over cotton-wool will sometimes assist in preventing a too great loss of heat and in preserving the body weight. Water should be given freely.

3. *Specific Causes of Suction Difficulties.*

It has been said that the difficulty of suction in the newly born is often merely a transitory want of precision and expertness, which in the nature of things is soon overcome if patience is exercised for a few

* Part of a lecture given at St. James's Infirmary, Balham, on Feb. 7th, 1922, in connexion with the South-West London Post-Graduate Association.

weeks and immediate recourse is not had to the bottle. I wish rather, however, to direct attention to a variety of conditions which have the power very seriously to impair the efficiency of an infant's suction during the first months of life, some of which are of frequent occurrence and very readily amenable to treatment.

(*a*) Lack of appetite and refusal to suck as a consequence of various infective disorders or states of intoxication (sepsis neonatorum, icterus, eclampsia, hæmorrhagic disease, &c.). (*b*) Dyspnœa (nasal obstruction and nasal catarrh, bronchitis broncho-pneumonia, atelectasis, congenital heart disease, &c.). (*c*) Prematurity. (*d*) Local defects in mouth and lips (cleft palate, hare-lip, facial paralysis, ranula, sclerema neonatorum). (*e*) Injury during birth (cerebral hæmorrhage, cephalhæmatoma, depression of cranial bones). (*f*) Extreme somnolence. (*g*) Nervous excitement.

(*a*) *Refusal to Suck during Infection.*—The term sepsis neonatorum may be taken to include a large number of infective conditions of the newly born, characterised by very various symptoms, of which in a given case only one or two may be prominent—pyrexia, jaundice, convulsions, somnolence or coma, muscular rigidity, hæmorrhage from stomach or bowel, gastro-intestinal disturbance, &c. In only a few is the umbilicus the primary source of the infection. In general refusal to suck is a common accompaniment of this condition. One interesting group of these cases is that where muscular rigidity is so extreme as to suggest a diagnosis of tetanus. In one such case seen lately the rigidity of the jaw was so great that by no means could the mouth be opened widely enough to admit the nipple. On the third day of life this child developed profuse hæmatemesis and melæna. A similar case was recently in my ward in which the diagnosis of tetanus had been suggested. Of the total number of failures to secure breast-nursing a proportion is due to infection of the child, perhaps unsuspected.

(*b*) *Inability to Suck because of Dyspnœa.*—Here we have a more frequent cause of failure. Bronchial and pulmonary catarrh of any severity during the first weeks of life may make nursing very difficult. Still more dangerous to lactation and very much more frequent is the nasal obstruction of the common colds which run through households. The infant is as prone to suffer as any member of the family. It is, perhaps, due to the indefiniteness of the symptoms that this is not always recognised. A slight snuffling sound on respiration, louder when the child cries, is usually heard. Since the muco-purulent discharge passes almost entirely backwards into the pharynx cough is generally present, while little or nothing is to be seen by an inspection of the anterior nares. The submental glands are commonly enlarged. Otitis media is a frequent complication. Because the infant has but one function highly developed and capable of disturbance, that of digestion, very often all the most striking symptoms are confined to the gastro-intestinal tract—vomiting and persistent diarrhœa. Some degree of obstruction to nasal breathing is an invariable result. To breathe through the mouth and to suck efficiently at the same time is beyond the power of the young infant. The danger of an attack of nasal catarrh at this age lies in the risk which it carries with it of a failure of lactation.

Before nursing the nose should be cleared by allowing a few drops of warmed alkaline lotion to flow backwards through the nares—sod. bicarb. 1 per cent., purified borax 1 per cent. The baby's head should be bent backwards till the nostrils point upwards and the lotion allowed to drop slowly from a pledget of wool. In more severe cases one or two drops of a solution of adenalin, 1 in 1000, or if the discharge is very profuse, silver nitrate lotion, 1 per cent., may be used.

(*c*) *Inability to Suck because of Prematurity.*—It is not possible to gauge the power to suck merely by an estimation of the weight. Some of the tiniest infants suck powerfully and effectively. As a rule, the greatest trouble is due to somnolence (see below). Premature infants, moreover, suffer in disproportionately large numbers from infections of all sorts. Nearly all have some degree of jaundice. A subnormal temperature is a common reason for failure. The cause of the prematurity is more important than the degree of it. Prematurity due to syphilis or to eclampsia in the mother has a bad prognosis.

(*d*) *Inability to Suck from Local Defects in the Mouth.*—Tongue-tie causes no interference with suction. Mr. Kelsey Fry[1] has recently demonstrated an ingenious obturator which can be affixed to the mother's nipple and which, in some cases at least, makes nursing possible for infants with cleft palate.

(*e*) *Refusal to Suck because of Injury at Birth.*—Meningeal hæmorrhage during delivery is found in two classes of case. There is a group of children with large, well-ossified heads in whom delivery has been very difficult, and a group of small infants with soft ill-ossified heads, often premature, in whom labour was precipitate. The second group is much larger than the first. In some of these infants who later reveal themselves as sufferers from spastic diplegia, suction is ill-controlled from the first or it may be that suction is well-performed, while the act of swallowing is bungled so that much of the milk escapes from the mouth or sets up fits of coughing. In these cases there is either damage to the medulla, or else—as in pseudo-bulbar paralysis—the complete separation from the voluntary centres is responsible. It is said that in a few cases as a developmental defect there is a primary aplasia of the labio-glosso-pharyngeal nucleus. Apart from cases in which actual injury to the brain has resulted it is often found that infants who have suffered severely at birth from the effects of difficult labour—cephalhæmatoma, for example, or from depression of the cranial bones—are apt to be inert, lax, and feeble in suction during the first weeks of life.

(*f*) *Refusal to Suck because of Extreme Somnolence.*—Save in severe cases of prematurity or when the coma indicates a cerebral lesion, or is the result of exhaustion following upon many convulsive seizures, this is usually a transitory difficulty which can be overcome by some suitable form of stimulation.

(*g*) *Inability to Suck because of Nervous Excitement.*—This, I believe, is by far the commonest cause of the failure of lactation in the early weeks. The management of the child is at fault, or the infant may have inherited a peculiarly sensitive nervous system. At any rate sleep becomes interfered with. Instead of spending 20 hours of the 24 asleep, motionless in an air space with a constant high temperature, many hours are passed in restless movement with violent crying. The loss of heat from the body may increase threefold, the demand for food rises high above the yield from the mother's breast. The infant is tense and rigid with clenched fists and anxious expression. At the slightest sound in its vicinity it wakes from sleep with a start, the anxious expression flows back into its face, and the monotonous emotional crying begins again. Peristalsis of the bowel may be unduly active and many small explosive motions be passed in the day, often whenever an attempt is made to nurse the child, or there may be vomiting so violent and projectile as to raise the fear of pyloric stenosis. The mother of this restless, emotional, hungry child rightly complains that she has not enough milk to satisfy it. Yet the picture is primarily one of nervous unrest. It contrasts sharply with the quiet, subdued infant, with cool skin, slim body, relaxed muscles, subnormal temperature, and constipation, who suffers primarily from underfeeding.

But the important point with regard to this common nervous unrest of infants who are handled inefficiently or over-anxiously is that the efficiency of the child as a suction pump rapidly declines. There is no longer steady, persistent, effective suction. In the

[1] Proc. Roy. Soc. Med., 1921, vol. xiv., Sect. of Odontology, pp. 57–68.

worst cases the child takes no notice of the proffered breast and continues to cry with wide-open mouth. In others it grasps greedily at the nipple, sucking violently and incoördinately, distending its stomach with wind, as may be demonstrated by percussion, often tiring readily or suddenly desisting from sucking with the impatience which is for the time being part of its nature. With such ineffective suction it is only a matter of a few days before the breast milk declines to the vanishing point.

Such children must be made to sleep. They must be put to the breast, not when flushed or excited or when pale and prostrate in the reaction which follows the fit of crying, but when quiet and drowsy. This form of sleeplessness and restless excitement is, in my experience, by far the most common cause of the failure to nurse at the breast. It makes up perhaps some 50 or 60 per cent. of all the cases of early failure. No doubt the nervous tension and restlessness of the infant is communicated to the mother even if it did not originate there. There is free interplay between the anxious mother and the restless child. By quieting the child the disturbance in both can be cut short. There is, as a rule, no great difficulty in securing sleep. A good nurse will often be immediately successful when her quiet, confident management succeeds to the timid, agitated and agitating handling of the inexperienced mother. Hot packs or prolonged hot baths, frequently repeated, are of great service. Another device, also borrowed from the treatment of excitement states in adults, is that of enveloping in a very tight shawl, a sort of infantile straight waistcoat. Such children should be carried everywhere on the pillow which forms their mattress. By so doing we insulate, as it were, the mother's nervous system from that of the infant. Moreover, it is thus made easier to lift the child without waking it and starting the cry, and we thereby maintain the warm air space around the body unbroken. During their "lucid intervals" these babies are almost always preternaturally quick and observant. The aim of treatment is to secure sleep and to feed the child not after a storm of crying but when drowsy and quiet. If the child is asleep the mother must get it to the breast without starting the crying. If she fails in this or if the child at once becomes agitated and excited, a prescription of 1 gr. of chloral hydrate and 1 gr. of potassium bromide will almost always succeed. It is the chloral which acts so promptly and effectively. Within ten minutes of taking a grain of chloral infants, unless worked up into a state of great excitement, will fall asleep. When they are then put to the breast the suction will be quiet, steady, and effective. Infants have a high tolerance for chloral. One grain given in this way before each of five or six feeds is without any ill-effect whatever and can be kept up for some weeks if need be. As a rule, the combination of the other measures with the hypnotic secure sleep and rest within a few days. Once the vicious circle of hunger and unrest is broken the drug can be omitted. The restlessness, the increased hunger, the fault of suction which makes it impossible to satisfy that hunger, the distension with wind, the vomiting and diarrhœa all cease as soon as the child begins to sleep soundly and well. We must act promptly and secure immediate relief. The strain upon the mother of such a child is so great that it is not surprising that the quality or quantity of the milk is usually blamed and weaning takes place.

Many infants are weaned unnecessarily—time has not been given for the suction pump to become effective. In other cases there exists an underlying cause. Of these causes, obscure and perhaps unsuspected infection, nasal obstruction, and incoördinate suction due to sleeplessness, hunger, and over eagerness are three of the most common. If the mother's nipple is well formed failure to nurse in the first weeks of life, the time when failure is most disastrous, is generally due to some infantile defect. For these defects a careful examination of the child must be made.

STUDIES FROM THE ROYAL MINERAL WATER HOSPITAL, BATH.

By J. M. H. MUNRO, D.Sc., L.R.C.P. Lond., F.I.C.,
HON. PATHOLOGIST TO THE HOSPITAL.

I. SUBACUTE AND CHRONIC MULTI-ARTICULAR ARTHRITIS.*

THE cases narrated below are of interest as bearing on the infective or non-infective nature of a multitude of cases often diagnosed as chronic or subacute rheumatism, but still more frequently as "rheumatoid arthritis."

CASE 1.—E. R. M., aged 18, farm labourer, single, was admitted under Dr. R. Waterhouse, to whom I am indebted for permission to publish the case, on Jan. 21st, 1921, as a case of "subacute rheumatism" for treatment with the mineral water and baths. His admission paper, signed by Dr. F. L. Newton, of Malvern, gave the date of onset of this, the first, attack as October–November, 1920, with no history of a previous illness. The attack began with pain, swelling, and tenderness of R. ankle and some of the R. metacarpo-phalangeal joints: the L. hand was also affected, and there is now slight ulnar deflection of the fingers of both hands, with fusiform joints. Both wrists, L. shoulder, and some cervical vertebral joints are also affected. Temperature on admission was 98·6° F. and thereafter irregular with 98·8° and 97·4° as maximum and minimum. Soon after admission the L. knee swelled, with effusion into the joint, and pustules appeared on the anterior aspect. Smears from these pustules showed Gram-positive cocci, and cultures gave what might be described as streptococci in couples and in chains of three. On Feb. 1st I aspirated the knee and obtained 18 c.cm. of slightly cloudy, straw-coloured fluid, which on standing deposited a little fibrin. Smears from this fluid showed many leucocytes and in some fields a few Gram-positive cocci. Cultures in broth and agar grew these cocci in four to five days. The joint was aspirated a second time on the 11th, and another 20 c.cm. fluid of similar character withdrawn. Smears were made on eight slides (new unused ones). The first five examined showed many leucocytes but no visible organisms, but the sixth showed a few clumps of Gram-positive cocci. Cultures on broth and agar again grew these cocci after a few days. The joint did not fill up again.

Cytological examinations were made of both specimens of fluid and compared with a blood count made on Feb. 1st (Table I.). The subculture obtained from the pustules and

TABLE I.

—	Blood count.		Joint fluids.			
	Feb. 1, '21.		Feb. 1, '21.		Feb. 11, '21.	
Erythrocytes per c.mm.	4,884,000		None.		None.	
Hæmoglobin	72%		—		—	
Colour index	0·74		—		—	
Leucocytes per c.mm.	15,800		12,820		24,680	
Differential count—	(A)	(B)	(A)	(B)	(A)	(B)
Polymorphs	66	10,428	78	9,684	54	13,338
Lymphocytes	23·5	3,713	28	3,584	44	10,868
Large mononuclears	8·5	1,343	2	256	2	494
Eosinophiles	1	158	0	0	0	0
Basophiles	1	158	0	0	0	0

(A) = per cent. (B) = per c.mm.

the two subcultures obtained from the two aspirations of the knee-joint were compared morphologically and by their fermentation reactions. They gave identical results. Grown in broth they yielded pure cultures of streptococci in chains of 3–6 cocci. These cultures, repeatedly tested, yielded acid in lactose, saccharose, maltose, and peptone water, fermented mannite, dulcite, and inulin, and produced acid and clot in litmus-milk. They did not ferment nutrose or glucose, and did not liquefy gelatin or reduce neutral red. On blood agar the colonies were grey and flat; no green colour was produced by the cultures and no marked halo of hæmolysis. The patient's blood serum tested on three occasions with emulsions of this coccus by Dreyer's method showed no agglutination in dilutions of 1/25 to 1/250. The report on the urine reads: "Acid, clear, albumin 0, sugar 0, leucocytes, 0, reds 0, crystals 0. No organisms on smears, casuals only on culture, no cocci."

CASE 2.—F. W., male, unmarried; occupation, teacher: admitted under Dr. F. G. Thomson, Dec. 30th, 1920, with a reported diagnosis of "chronic rheumatic arthritis." States

* Paper read at a meeting of the Bath Clinical Society held at the Royal Mineral Water Hospital, Bath.

that he had diarrhœa and vomiting in 1916 and was in bed two months with "rheumatic fever" with all joints swollen. In November, 1918, he had been admitted to this hospital as a case of "subacute rheumatoid arthritis" and sent out with a diagnosis of "rheumatic arthritis." There was then fluid in R. knee and R. ankle, fusiform thumb-joints, and synovitis and pain of L. heel. There is also a statement of fluid in L. knee in 1915 after injury. In 1919 he came under the care of a doctor (who now sends him here) as a convalescent from a bad attack of "multiple arthritis." The only sign in 1919 was swelling of the carpo-metacarpal joint of the left thumb, with occasional pain in ankles and wrists. In August, 1920, however, both knees became greatly distended, ankles swollen, wrists and shoulders painful, with a rise in temperature. The condition thereafter fluctuated, temporary amelioration following "phylacogen" treatment. On the second admission to this hospital his temperature was 97·6° F., the parts affected were the feet, ankles, knees (both with effusion), thumbs, and R. shoulder. Ten days after admission his temperature rose to over 101° with daily remissions, and continued in this fashion until his discharge, March 24th, 1921. Venereal history was strongly denied, and the urine was twice carefully examined for gonococci and threads with negative results. On Jan. 21st, 1921, his blood count gave: Reds 78 per cent., hæmoglobin 50 per cent.; colour index 0·64; leucocytes 5800, leucopenia; differential count: polymorphs 73, lymphocytes 23·5, large mononuclears 3, eosinophiles 0, basophiles 0·5 per cent. There is no such leucocytosis as one would expect in an acute coccal infection, but granting an infection the *relative* increase in polymorphs points to a coccal rather than a bacillary one. The L. knee was aspirated and the fluid examined. It yielded no cultures nor were organisms found on the smears, but leucocytes were very numerous and a differential count gave polymorphs 93 per cent., lymphocytes 7 per cent. Here again a coccal infection is suggested. A blood culture made Jan. 24th, 1921, yielded growths in two out of four tubes, short streptococci in both cases. From one of these—a North's medium slope—subcultures were made on the same medium, a vaccine prepared, and the fermentation reactions of the streptococcus determined on repeated occasions. It develops acid in lactose, saccharose, maltose; none in mannite, dulcite, nutrose; ferments dulcite, inulin, and salicin; gives acid and clot in litmus-milk, does not liquefy gelatin, nor reduce neutral red. The patient had six injections of auto-vaccine and two of anti-streptococcic serum and was discharged slightly better but still running a temperature in March, 1921.

To these cases I add one from private practice, seen within the past month.

CASE 3.—Mrs. X., widow, aged 53, had an attack of "rheumatism" after her first and only confinement 14 years ago. She recovered from this and had no further trouble until 1919. She had influenza in the winter 1918–19, whether in the October or following January epidemic is not clear; it left her very weak for a time, and the symptoms of multiple symmetrical arthritis appeared soon after, affecting ankles, knees, and wrists. Three weeks ago both wrists swelled and became painful, the L. being the worse. When seen the swelling radiated from the metacarpo-phalangeal joint of the forefinger over the dorsum of the hand, and there was marked local sweating of both hands with loss of power. Temperature 99·1° F. There was periarticular thickening of both knees, some tendency of the ankles to swell in the evening, and a stick had to be used in walking. A blood culture was made from a varicose vein behind the knee and a culture of short streptococci obtained therefrom. Several teeth had been removed and streptococci were found with other organisms in a platinum wire specimen from the socket of one of those remaining, whose removal was advised also. Streptococci were found in smears from the urine, which was free from albumin, and showed few or no leucocytes. Finally, streptococci were also seen in smears from the os uteri, which, however, showed no ulceration or erosion, nor did any purulent discharge issue from it.

Regarding the cervix uteri as a focus of infection in arthritic cases, I have always held strong views, and never omit a routine examination of it in private cases when at all possible. The more than doubled frequency of this type of arthritis in women over men receives its most plausible explanation in the existence of this additional focus, situate in a cul de sac—the only mucous one in the human body which in a large percentage of individuals is never cleansed. Bacteriological work at this hospital really began in 1909 when Dr. Emily Morris, R. C. Brown Research Scholar, found that of 60 female patients suffering with "rheumatoid arthritis" 60 per cent. had vaginal discharges, of which 20 per cent. were considered purulent, although all yielded growths. Staphylococci, *B. coli*, and diphtheroid bacilli were the organisms found; it is curious there should be no mention of streptococci. When in 1913 I extended this investigation to the os uteri (as in my private practice) I had at starting a run of seven successive cases showing purulent erosion or ulceration of the os, sometimes in symmetrical contact patches, and not until a considerable number had been examined was I disposed to admit the existence of a healthy os in these cases. The four pathogenic organisms I find most frequent are streptococci, diphtheroid bacilli, *B. coli*, and staphylococci—with many saprophytes. At one time I attached much importance to the diphtheroids and *B. coli*, but in spite of some striking experiences with the diphtheroids I am now more inclined to think streptococci are the most frequent pathogenic organisms (setting aside gonococci) to get into the blood stream by this route. A very eminent consulting physician has treated with ridicule the idea of contracting arthritis through these lesions; but what about gonococcal arthritis, and why should a purulent ulcerated patch on the os uteri be a lesser source of danger than one on the pharynx or tonsil? And finally, how would a female patient regard a doctor who should order removal of all her remaining teeth, find their sockets non-purulent, and afterwards demonstrate an ulcerated os?

Other Investigations.

The foregoing cases are cited because of the rarity of positive results in examining joint effusions or blood from a vein in these cases of arthritis; they are the only positive results obtained by me since the war. In over 50 examinations of joint effusions—bacteriological, cytological, and chemical—made at the request of the hospital medical board by my late colleague Dr. G. H. H. Almond and myself before the war in similar cases to those described here, only four yielded cultures; in each case these were of Gram-positive cocci, and in one or two specimens only were any organisms found on the smears. The cell counts, however, were interesting, a large proportion exhibiting numbers of leucocytes comparable to all degrees of leucocytosis in circulating blood. Differential counts were made in all cases, and although I cannot quote statistics, as the tabulated results are with the rest of Dr. Almond's papers, I remember that many showed a predominance of polymorphs over lymphocytes consistent with coccal infections. Out of 12 successive cases, of which I have notes, five show relative increase in polymorphs (77–89 per cent.), five relative increase in lymphocytes, and two normal proportions. One fluid showing 80 per cent. lymphocytes, 20 per cent. large mononuclears, and no polymorphs was from a knee inflamed for two years following a blow—? tuberculous.

Blood cultures in the cases running a temperature were (in this pre-war investigation) still more uniformly negative, a fact which can cause no surprise to those who had to deal during the war with the comparative failure of this mode of isolating the infecting organisms in enteric cases. As regards arthritis, our experience in this regard is on all fours with that of other investigators, of whom I will quote only two.

Sir W. H. Willcox,[1] writing recently on Infective Arthritis and Allied Conditions, and dealing with "the very large group of cases which have been described under the terms rheumatoid arthritis, arthritis deformans, osteoarthritis, chronic villous arthritis," contends that the infective agent is "generally of a streptococcal nature," but states that it "cannot usually be obtained from the affected joint or tissue," and gives no instance of its recovery from an affected joint or the blood. The streptococcal vaccines used in treatment are commonly made from streptococci of the supposed guilty type isolated from pyorrhœa specimens, fæces, urine, pharyngeal tonsillar or post-nasal swabs, occasionally sputum, pus from cervical endometritis, &c.

[1] Brit. Med. Jour., 1921, i, 804.

A research published in 1920 by J. H. Richards[1] dealing with a series of 104 cases similar to the above is especially interesting. In 104 blood cultures, with a special medium (North's), and using 5 to 10 plates for each, 14 yielded a growth, and this was apparently the same in all cases—a streptococcus which "can be classed as *S. viridans*." Of 54 joint effusion cultures 4 yielded growths, in each case again *S. viridans*. The teeth yielded the same organism in 50 of the cases, tonsils in 40, nasal cavity 11. Forty-two cases showed streptococci in the fæces, but *S. viridans* was identified in 5 only of these specimens. Although 53 cases were women, no mention is made of vaginal or uterine examination. The characters of *S. viridans* as obtained are given thus: "Did not break up in bile, did not peptonise milk, grew in chains in broth, produced green in blood, retained Gram stain, of low grade virulency to rabbits." Viability was low, the original colonies were like little black spots, "only three produced green in the original culture, but the remaining 11 did so in the transplants." No fermentation reactions are given. It does not appear from this that the streptococci obtained by me in the three cases described above were precisely of this type. Complement-fixation tests on the patients' serums with various antigens prepared from the cultures of *S. viridans* were done by Richards in all cases and the results will repay perusal.

I give a table (II.) of the fermentation reactions of my cultures obtained directly from joint effusion or blood; we are concerned in all three cases with a

TABLE II.—*Fermentation Reactions obtained from Joint Effusions or Blood.*

A = Milk clot. B = Milk acid. C = Gelatin liquefied. D = Neutral red reduced. E = Lactose. F = Saccharose. G = Glucose. H = Maltose. I = Nutrose. J = Mannite. K = Dulcite. L = Inulin. M = Salicin.

Case.		A	B	C	D	E	F	G	H	I	J	K	L	M
1	P.k. ..	+	+	−	−	+	+	−	+	−	+	+	+	−
	K.I. ..	+	+	−	−	+	+	−	+	−	+	+	+	−
	K.II. ..	+	+	−	−	+	+	−	+	−	+	+	+	+
2	Bl.c. ..	+	+	−	−	+	+	−	+	+	−	+	+	+
3	,, ..	+	+		−	+	+	−	−	−	−	−	+	±

P.k. = Pustules knee. K. I. = Knee-joint I. aspiration. K. II. = Knee-joint II. aspiration. Bl.c. = Blood culture.

streptococcus which is certainly not *S. pyogenes*, but a short chain one, showing likenesses to the pneumococci, of rather feeble growth, producing grey colonies on blood agar, and showing little trace of hæmolysis or discolouration of hæmoglobin.[2]

Inquiry into One Hundred Cases.

Indirect means then of "spotting" the causal organism of a given case of arthritis are much to be desired, and of these agglutination and complement-fixation blood-serum tests are naturally first thought of. It occurred to me that Dreyer's agglutination technique, of which I had extensive experience during the war as the routine method of differentiating enteric cases, might be applied to determine the probable frequency of a *B. coli* arthritis, to which I imagine women to be more liable for obvious reasons than men. Reflecting on this, and on the vague statements in standard medical text-books as to the blood picture in "rheumatoid" arthritis—Llewellyn, for example, is not able to quote any counts in his work on "Fibrositis," and most writers state or imply that they show nothing abnormal—I decided to make counts on 100 selected cases, taking the histories and other pertinent particulars personally, and availing myself of the proffered voluntary coöperation of Miss R. M. Pitt and Miss B. Orsborn, who had for three and a half years rendered me valuable assistance in the Bath War Hospital laboratory. It was surmised (from Almond's and my results on the joint fluids) that many counts would show a decided leucocytosis with relative increase in polymorphs—a picture of coccal infection—and that, on the other hand, a leucopenia with relative increase of lymphocytes might point to a bacillary one. The principle of selection was to include only hospital cases sent in with a diagnosis of "rheumatoid arthritis," or so diagnosed in the wards. Moreover, any case so admitted, but turning out on investigation to be gonorrhœal or unquestionable gouty arthritis, was excluded, as also any case with a clear history of a previous attack of acute rheumatism. Further, a preference was shown for multiple symmetrical affected joints, and many which exhibited ulnar deflection of the digits. In this way the counts certainly reflect what the profession as a whole understands by "rheumatoid arthritis."

Main Features Disclosed.

The 100 cases comprise 67 females and 33 males; 29 of the former and 18 of the latter were married; the ages varied from 7 to 57, and the onset dated back from 4 months to 27 years, preference being shown for more recent cases, as being more fitted for vaccine therapy. Analysis of the elaborate tables of results would be out of place here, but the main features disclosed are as follows: No single case of the whole 100 shows a normal blood picture. Every case without exception shows anæmia, in the sense of hæmoglobin deficiency. Whilst the reds varied from 50 to 149 per cent. (taking 5,000,000 equal 100 per cent.), 50 cases being over and 50 under 100, the hæmoglobin never exceeded 84 per cent. and went as low as 50 to 60 in 21 cases. The colour index was under 1·0 in almost every case, the average being only 0·67. The hæmoglobin deficiency is therefore not only invariable but considerable, and evidently of a kind not to any great extent remediable by the administration of iron, otherwise this drug must have obtained general favour in these cases comparable with that awarded to arsenic and iodides, the traditional stand-bys of the therapeutists of a generation ago. That the Bath water is distinctly ferruginous has, however, long been recognised as a matter of some importance for our patients. Turning now to the leucocytes, if we take 7500 to 9000 per c.mm. to cover the normal count, only 15 per cent. of the total cases fall within it, 24 per cent. show a leucopenia, and no less than 61 per cent. a leucocytosis. The extent of this leucocytosis is given in the annexed table (III.). No less than 26 cases fall between

TABLE III.—*Leucocyte Count in 100 Cases of Multi-articular Arthritis, Subacute and Chronic.*

Per c.mm.	M.	F.	Total	Per c.mm.	M.	F.	Total
2,000– 4,000	1	2	3	12,000–14,000	9	7	16
4,000– 5,000	1	2	3	14,000–16,000	4	5	9
5,000– 6,000	2	4	6	16,000–18,000	4	5	9
6,000– 7,000	3	6	9	18,000–20,000	0	5	5
7,000– 8,000	2	5	7	20,000–30,000	1	2	3
8,000– 9,000	3	6	9				
9,000–10,000	3	6	9		33	67	100
10,000–12,000	0	12	12				

M = Male. F = Female.

14,000 and 30,000 per c.mm. figures, which we associate with acute coccal infection and suppurative conditions. Broadly it may be said that these figures strongly support the now common belief in an infective ætiology for "rheumatoids," and are quite in harmony with the majority of the cases being coccal rather than bacillary.

The 24 cases of leucopenia are more difficult of interpretation, since this condition may indicate bacterial invasions of bacillary rather than coccal type, but may also arise from a failure of the defensive

[1] U.S. Journal of Bacteriology, 1920, p. 510.

[2] In a post-mortem made in 1913 by Dr. Almond and myself on a man who suffered for many years from chronic multiple arthritis, and died in this hospital from an intercurrent affection, we found fluid in very many of the joints and obtained cultures of a Gram-positive coccus occurring as faintly capsulated diplococci and chains of three or four.

mechanism in prolonged coccal attacks. Cases 1 and 2 with which I opened this paper well illustrate this point. Case 1, of comparatively recent onset, gave a leucocytosis (15,000 plus), whilst Case 2, running five years with periodic exacerbations and now resembling strongly in T. chart and aspect those cases of prolonged suppuration with failure of antibody production so painfully familiar to us during the war, shows a leucopenia (5800). It was hoped it might be possible to discriminate between leucopenia due to bacillary infection and leucopenia due to prolonged coccal attack by the differential counts—assigning those cases with relative increase of polymorphonuclear leucocytes to the latter class, and those with relative increase of lymphocytes to the former. In Cases 1 and 2 both the differential counts show a relative increase in polymorphs, although there is marked leucocytosis in Case 1 and marked leucopenia in Case 2. Applying this test to the 24 leucopenias we find relatively increased lymphocytes in 16 cases (3 males and 13 females) and relatively increased polymorphs in 6 cases (3 males and 3 females), with normal percentages in two cases (males). Taking the whole 100 cases 35 (14 males and 21 females) show a relative increase in polymorphs, whilst 57 (15 males and 42 females) show a relative increase in lymphoids; only 8 cases show normal percentages.

Probability of Coexistent Tuberculous or Syphilitic Activity.

It will be noted that a relative increase in lymphoids is more frequent than in polymorphs. In connexion with this I draw attention to an investigation[4] I carried out some years ago after a discussion with Dr. Ll. J. Llewellyn, in which I showed that about 50 per cent. of similar cases of arthritis gave a diagnostic temperature reaction to a very moderate dose of old tuberculin (1/250 c.cm. maximum), and that over 20 per cent. were positive to the Wassermann test (Fleming technique, controlled by statistical comparisons with healthy patients and with those suffering from other diseases than arthritis), and that 11 per cent. were positive to both tests. I am far from contending that the joint lesions are tuberculous or syphilitic in these proportions, but besides emphasising the indications for adjuvant therapy which these results suggest, I will point out the probability of coexistent tuberculous or syphilitic activity favouring the onset, chronicity, and spread of coccal joint affections, and the certainty of the blood count being altered in its features by these factors.

On the question of possible *B. coli* arthritis in women, tests for *B. coli* agglutination were made with 39 patients' sera (33 females, 6 males), by Dreyer's method, but the results are not decisive. Twelve cases showed some agglutination (3 males, 9 females) in a 1 in 25 dilution, but not in 1 in 50; indeed, the most marked agglutination obtained was with one of my controls, a lady with no sign of arthritis, but with persistent and intractable anæmia (agglutination to *B. coli* over 1 in 250 hæmoglobin 70 per cent. usually). Moreover, of the 9 females whose sera agglutinated *B. coli* only 3 exhibited leucopenia.

It is not desirable in this paper to push the analysis further; enough has been adduced to prove that the blood picture in so-called "rheumatoid" arthritis is never normal as to the reds and hæmoglobin, and very rarely as to leucocytes and their differential count. Eosinophiles, basophiles, and large mononuclears were enumerated, but no deductions have been drawn from their figures. Abnormal cells are uniformly absent.

Other Diagnostic Methods.

The complement-deviation test as diagnostic—already invaluable in directing attention to syphilitic complication—promises also to enable us to single out the gonococcal arthritides, perhaps the most often erroneously diagnosed as rheumatoid, and in Richards's hands has apparently lent weight to the evidence he adduces to prove his streptococcal infections. Other indirect means of attacking the problem exist. For example, W. Ford Robertson in a just issued work[5] attributes about 60 per cent. of cases of rheumatoid arthritis to "a special type of pneumococcus," basing this conclusion "on the intense sensitiveness of the patient to the toxin, the observation of focal and toxic reactions, and the success of therapeutic immunisation in many cases." I agree that sensitiveness to an auto-vaccine prepared not directly from the blood or infected foci is of some value as an indication that we have isolated a responsible organism, but should hesitate to push the argument as far as he does.

Obtaining marked agglutination responses to emulsions of the supposed guilty organisms has rendered such enormous assistance in the differential diagnosis and treatment of the enterics, dysenteries, meningitides, and miners' pneumonias as to induce us to expect much from it if streptococcal emulsions can be classified and standardised; in Case 1 here cited and one or two others I have, however, failed to gain corroboration in this way.

The impression left on my mind from the whole body of evidence, so far as I know it, is that of common and widely distributed species of pathogenic microbes of low virulence, belonging in most cases to a division of the streptococci, as primary causes; of trauma, erosions, chills and exposure, grief and nervous shock, prostrating and infective diseases as secondary causes. Then postulating a predilection for joint tissues on the part of these microbes, and granting the production from them of toxins which exercise specific action on the blood and nervous tissues, the pathological and clinical features of the rheumatoid arthritis group of lesions present an intelligible picture. Even when all the known methods of investigation fail to point out the *vera causa* in a given case, and at present it often happens, I feel no inclination to fall back upon dietetic errors, malnutrition, defective metabolism, intestinal toxæmia (apart from pathogenic bacterial activity), or a primary nervous lesion as causative agents.

I am indebted to Drs. Waterhouse and Thomson for permission to publish details of Cases 1 and 2. Miss Pitt and Miss Orsborn are responsible for the majority of the actual counts and for the compilation of the tables from which the results are summarised, and to them I tender my grateful thanks.

II. THE BLOOD PICTURE IN GOUT:

WITH SOME NOTES ON TOPHI.

PERHAPS the majority of the cases of typical gout can be justly described as subacute or chronic multiarticular arthritis. They were purposely left out of consideration in the preceding paper because they constitute a far more homogeneous group than the so-called "rheumatoids," and are so clearly marked off from them by four remarkable features: (1) uric acid phenomena, hitherto almost universally assumed to be of ætiological significance, (2) the sensitiveness of the symptoms to certain ingredients of food and drink, (3) the influence of lead poisoning, and (4) the therapeutic action of colchicum. Our senior physician, Dr. Ll. J. Llewellyn, who has very fully argued the case for an infective ætiology of gout in a recent work,[6] was anxious to know what bearing the blood picture had on this contention, being unable to find in the voluminous literature of this disease any adequate reference to this feature; I therefore undertook to supplement my investigations of the rheumatoid blood count by counts on such cases of true gouty arthritis as presented themselves. As Llewellyn remarks, these cases are becoming less and less frequent, and if we are to regard tophi as "*the* infallible criterion of

[4] Reported in Llewellyn's "Fibrositis," p. 49. Heinemann, 1915.

[5] Therapeutic Immunisation. E. and S. Livingstone, 1921, p. 259. (For Review, see THE LANCET, 1921, ii., p. 1060.)

[6] Gout. William Heinemann, Ltd., 1920. (For Review, see THE LANCET, 1921, ii., 395.)

diagnosis" [7] they constitute a small fraction only of our arthritic admissions to hospital.

Summary of Results of Twenty-seven Cases.

Since March, 1920, I have made 27 blood examinations in cases of true gout, the results of which are here summarised. Twelve cases exhibited tophi, showing, on examination, the usual crystalline needles of biurate. Nine showed tophi in the contents of which no crystals could be discovered. Six were without marked tophi, but were of well-ascertained "family" gouty character with a history of repeated attacks or of a typical right big toe onset, except in the two female cases. Of the 12 cases showing tophi with crystals one was diagnosed as rheumatism and fibrositis in 1917; one was sent in as chronic rheumatism; one as myalgia and rheumatic synovitis of knees; one as chronic arthritis; one as rheumatism; one as subacute rheumatism; and one as rheumatoid arthritis, although the typical big toe-joint was inflamed and discharging. Difficulty of diagnosis in non-tophaceous cases is not surprising, but where crystals are readily demonstrated there should be no room for ambiguity. Of the 27 cases, 25 were males between 39 and 79 years of age, two only were females, and these two were the most doubtful of all those in which crystals were not demonstrated. Most cases were of the polyarthritic type; two were well-marked cases of painter's gout. One very interesting case was that of a Creole, running a temperature with many fluctuating tophi sites with creamy crystalline urates and effusions in the left knee and wrist. The knee-joint fluid contained 44,800 leucocytes per c.mm., 92 per cent. were polymorphs, 7 per cent. lymphocytes, 1 per cent. large mononuclears, eosinophiles and basophiles 0. Four culture tubes were sterile. Two successive blood cultures were made and each yielded Gram-positive cocci in three days; transplants failed. Blood counts at two different dates are given (41 and 41a) in the table. This was the case sent in as "chronic rheumatism." The table of the blood counts in the 12 cases in which crystals were actually demonstrated will perhaps be more to the point than an analysis of the entire series. (Table IV.)

TABLE IV.—*Twelve Cases of Multiarticular Gout with Tophi showing Crystals.*

A = Reference No. B = Sex. C = Age. D = Duration in years. E = Erythrocytes per cent. F = Hæmoglobin per cent. G = Colour index. H = Leucocytes. I = Polymorphs per cent. J = Lymphocytes per cent. K = Large monos. per cent. L = Eosinophiles per cent. M = Basophiles per cent.

A	B	C	D	E	F	G	H	I	J	K	L	M
34	M	32	2	127	74	0·5	21400	64	28·5	2·5	3·5	1·5
41*	M	41	11	88	60	0·68	27200	78	9	13	0	0
41†	M	—	—	77	52	0·68	13600	63	35	0	1	1
45	M	55	11	114	65	0·57	13200	61·5	34	3	1	0·5
65	M	64	32	100	72	0·72	13400	78	15	2·5	1	3·5
65‡	—	—	—	85	60	0·71	26200	66·5	27	5	1	0·5
78	M	47	6	100	74	0·74	5400	55	39	2	3	2
86	M	46	2	75·5	76	1·0	10880	65	31	2·3	0	1·5
122	M	49	5	93	62	0·67	7400	52	40	7	0	1
132	M‖	71	4	103	74	0·72	6800	69	29	2	0	0
151	M	47	2	136	74	0·55	10600	48·5	46·5	1·5	3·5	0
161	M	60	15	127	72	0·57	7000	62·5	31	4	2·5	0
169	M	39	18	121	76	0·63	7400	40	47	8	5	0
175	M	60	13	92	60	0·65	11400	66	26	3	4	1

* May 20th. † Oct. 20th. ‡ Second count. ‖ Single. All the other cases mentioned in the table were married.

Occupation.—34, Farm hand. 41, Pedlar. 45, 86, 151, Labourer. 65, Coachman. 78, Musician. 122, Ex-soldier. 132, Cabman. 161, Butler. 169, Theatre attendant. 175, Brewery.

The counts agree strikingly in several respects with those obtained in the 100 cases of non-gouty multiarticular arthritis summarised in the preceding paper. Erythrocytes are over or under 100 per cent. in about equal proportions, but the hæmoglobin is in all cases deficient, the percentages ranging from 52 to 76; colour index is normal in only one case, in the others ranging from 0·5 to 0·72. Hæmoglobin anæmia is therefore equally characteristic of gouty and non-gouty polyarthritis if chronic. Seven cases show marked leucocytosis and five leucopenia. The leucocytosis in gout naturally shows great variation in the course of the short flying attacks of particular joints. Chalmers Watson [8] gives a count of 9000 leucocytes before attack, 12,500 five days later with slight symptoms, and 20,500 eight days after this at the height of attack. Two cases show decided relative increase in polymorphs and four or five a relative increase in lymphocytes. The case of the Creole already cited is remarkable as showing a leucocytosis at one period and a lymphocytosis five months afterwards. It is worthy of note that his blood serum agglutinated *B. coli* up to a dilution of 1 in 50; one of the non-tophaceous cases agglutinated up to 1 in 125; nine out of the whole 27 cases were subjected to this test and four positives obtained in dilutions of 1 in 25 to 1 in 50. Two of the 27 counts show erythrocytes over 7 millions per c.mm. (No. 34 in table and another with tophi not showing crystals), and four others over 6 millions. Da Costa [9] records 14,000 leucocytes in a single case with polycythæmia (7,125,000). In three of my six cases of the latter, however, leucopenia was associated with erythræmia.

Tophi.

Clinical lecturers on gout are usually content to tell their students that tophi of the ear cartilage are diagnostic of gout, and that on pricking one a milky fluid or a congeries of chalky particles can be expressed which under the microscope show abundant acicular crystals of biurate. When Sir William Osler opened our laboratory in 1914 he was much interested in my remark that there was probably a pre-uratic condition present in tophi, since I had failed to find crystals in some which nevertheless yielded a milky fluid, and in one case a chalky solid. He afterwards wrote asking me to collect evidence, and since the war I have added some scores of observations to the previous ones. If one pricks such tophi as have been considered diagnostic of gout one may get either a milky fluid or chalky concretions or a sanguineous fluid. Neither will invariably show crystals; the proportion of those which do so is from half to two-thirds. Even the sanguineous fluid will sometimes show clusters of crystals between the reds. A slide at first showing no crystals, but only red corpuscles, will sometimes—if left to dry with the cover-slip not paraffined at the edges—show them some hours later; some, again, will not do so at all. These stages are natural, since crystals presuppose a supersaturated solution, and all stages must exist from the normal serum content to crystal deposition. Again, it is not true that the urates in tophi are invariably crystalline; I have found a case with many well-marked tophi, not only of the ears, in which nodular masses of amorphous urates destitute of crystals occur.

Finally, two or three cases have cropped up in which the "chalky" concretions contain no urates (as crystals or by the murexide test) but consist principally of calcium phosphate. Such an occurrence has been described under the name of "Calcium gout," a most unfortunate term. If the phenomena of a gouty joint or cartilage be held to bear the marks of an infective process, and to be parallel to those of suppuration in a furuncle or to those of a cold abscess, then the tophus is the analogue of the necrosed tissue and leucocyte débris which form the contents of these abscesses, and the uratic or phosphatic deposit may well be of focal origin.

An Illustrative Case.

Hitherto I have been able to examine but few tophi bacteriologically. The singular history of the following case is perhaps worth recording.

G. F. W., male, 49, married. Painter, never had colic or dropped wrist, no blue line on gums. Admitted under Dr. Llewellyn on May 24th, 1921, with "arthritis," diagnosed in ward as gouty. Was here in 1917 and 1916 with "arthritis" or

[7] Loc. cit., p. 253.

[8] Brit. Med. Jour., 1900, i., p. 10.

[9] Quoted in Cabot's Guide to Clinical Examination of the Blood, 1904, p. 394.

"rheumatism." Dates trouble from October, 1914, when on joining up was inoculated against enteric. A few days after first inoculation most of his joints swelled. Instead of second inoculation was sent into hospital; was there six weeks, followed by four weeks' convalescence, then returned to duty, but was boarded and discharged unfit for further service October, 1915. Managed to get passed for M.T.A.S.C. almost at once, and served till May, 1919, when demobilised. Sent here from military hospital in 1917 for arthritis right elbow. Present relapse began January, 1921, through sleeping and kneeling in damp straw. Both knees now bad, and pain and stiffness in interphalangeal joints of both hands.

Blood count: Reds 7,092,000 (erythræmia), hæmoglobin 78 per cent., index 0·55; leucocytes 9200, polymorphs 52·5, lymphocytes 33, large mononuclears 10, eosinophiles 2, basophiles 0·5.

There were very small tophi in one ear. Particle of white matter, squeezed out, showed no crystals, but numbers of Gram-negative bacilli thinner and longer than *B. coli*, which refused to grow on agar. A second particle taken next day from same ear showed slight growth after several days with apparently same bacilli, but also some polar staining invaders (?). This was plated without success in isolating the Gram-negative bacilli, but a few colonies of streptococci were found. Clearly there was here an infected or infective tophus, but what the bacilli seen were—and whether they were alone in the tophi, which were very minute—is open to doubt.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

SOME UNCOMMON ABDOMINAL EMERGENCIES.

BY H. W. L. MOLESWORTH, F.R.C.S. ENG.,
LATE SURGICAL REGISTRAR, LONDON HOSPITAL.

THE following six cases may be of interest on account of their rarity. They came under my operative care whilst I was surgical registrar at the London Hospital.

CASE 1.—B. L., female, aged 15. This Hebrew girl was admitted to the London Hospital on August 2nd, 1920. She gave the following history. Perfectly well until one week before admission. She then began to complain of abdominal pain referred to the region of the navel, and associated with thirst and loss of appetite. She was constipated, but there was no vomiting. Three days before admission she was given an aperient; two hours before admission she was seized with violent abdominal pain; she vomited once. On admission: temp. 96° F., pulse 114, rising to 120 one hour later. Abdomen was slightly distended but moved freely on respiration. There were deep tenderness and slight rigidity in the right lower quadrant. No cutaneous hyperæsthesia as elicited by a dragged pin. She was covered with what looked like flea-bites and looked "abdominal." Preoperative diagnosis was perforated appendix.

Operation.—A perfectly normal appendix was removed through a gridiron incision. Nothing abnormal could be seen or felt, and being convinced that her symptoms were of abdominal origin, I opened the abdomen in the mid-line. Several hæmorrhages into the wall and lumen of the small intestine were at once apparent, and the diagnosis was immediately obvious. Wounds were closed and on treatment with calcium lactate and normal horse-serum she recovered completely. She had two further attacks of severe pain, and a fairly profuse melæna. Careful examination showed that some of the spots were true flea-bites, and others almost indistinguishable purpuric spots. This is an example of a "classical" error in diagnosis. Henoch's purpura is rare, but when it closely simulates abdominal emergency it is difficult to take the responsibility of not opening the abdomen.

CASE 2.—R. I., female, aged 24; married, one child. Admitted March 3rd, 1921. Five weeks before admission a normal, non-instrumental first labour. She was confined to bed for 14 days. Had slight pyrexia, degree not known. Two days before admission sudden severe abdominal pain with repeated vomiting. On admission: Temp. 102°, pulse 160; very ill, repeated vomiting. Distended abdomen, board-like rigidity.

Operation.—Middle third of right rectus displaced inwards; peritoneum flooded with thick pus having a musty odour. Mass in pelvis proved to be a right ovarian dermoid cyst with a perforation ¼ inch in diameter exuding pus and hair. This was removed and the abdomen dry-mopped and drained. During convalescence she developed a right subphrenic abscess which resolved without operation. Seen three months later she reported herself as being perfectly well. Infection of this cyst evidently took place during the puerperium.

CASE 3.—C. K., male, aged 3. Sixty-four hours before admission complained of abdominal pain of an intermittent character. Vomited repeatedly, the vomits becoming offensive; was stated to "hold his water a long time." He had double inguinal herniæ. Blood and mucus were seen in a very small stool that he passed. Enema produced nothing but blood and mucus. He was apathetic and cold. There was a rounded oval tumour situated centrally in the abdomen with its long axis vertical slightly movable. Rectal examination was negative. The pre-operative diagnosis was intussusception.

Operation.—Laparotomy showed that the tumour was retro-peritoneal, presenting through the meso-sigmoid. This was an enlarged ectopic left kidney. The right kidney was normal in size and position. The left was seen to be a thin-walled cyst, which was removed through the abdominal incision. The abdomen was closed, the operation having taken 12 minutes. The specimen was a hydronephrosis due to congenital stricture at the uretero-pelvic junction. This boy developed scarlet fever during convalescence, but I subsequently learnt that he had completely recovered. One is rather at a loss to explain why his symptoms should be referred to the colon, and why he should pass blood and mucus.

CASE 4.—An old man of 63, who had recently been discharged from an asylum, was admitted on May 18th, 1921. His bowels had not acted for four days; he had vomited repeatedly, could not pass flatus, and was extremely ill.

Operation.—On opening the abdomen through the inner part of the rectus sheath, the peritoneum was found to contain blood-stained fluid. The intestines were enormously distended, and about 6 feet were allowed to prolapse into hot towels. Empty small gut led to the superior ileo-cæcal fossa, where about 18 inches were strangulated to the point of gangrene. Resection and lateral anastomosis were performed by suture and the abdomen closed with drainage. The operation had lasted 35 minutes only, but the patient left the theatre in poor condition and died four hours later.

CASE 5.—W. S., aged 55. Was admitted to Poplar Hospital May 13th, 1920. On the 10th he had sudden severe abdominal pain; bowels had not acted but he had passed flatus. On the 12th vomiting commenced, and he had absolute constipation. On the 13th symptoms continued, and he came to hospital in a cab. He was looking "pinched" and felt cold, though his temperature was 99° and pulse 76. Abdomen slightly distended; no external hernia. Just above the right internal abdominal ring was an elusive rounded lump; but whilst its characters were being sought it slipped away and got lost. Diagnosis was intestinal obstruction due to unknown cause; on opening the abdomen the lump was found to be in the small intestine about a foot from the ileo-cæcal valve. On incising the gut the lump proved to be two-thirds of an orange complete with its skin, rolled into an ellipse rather like a shark's egg. This was removed and the gut sutured. Three days later he had another attack of abdominal pain, vomiting, and constipation. Preparations for a second laparotomy were afoot but quite suddenly he announced that he was better. The following morning he passed the remaining third of the orange rolled into a similar though smaller ellipse. Thereafter he made an uninterrupted recovery: though nothing would induce him to admit that he had swallowed anything unusual.

CASE 6.—G. McI., female, aged 38. Was admitted to the London Hospital August 18th, 1921. The history given was as follows: 14 days' abdominal pain, eight days' constipation finally absolute to flatus and fæces. She vomited intermittently. On admission: The abdomen was distended, and though careful search was made by three observers no external hernia was discovered.

Operation.—The abdomen was opened. The small gut was very distended and the cæcum empty. The tip of the appendix was adherent in a right femoral sac; the body of the appendix acting as a band was constricting a small loop of small intestine. The appendix was readily coaxed out of the sac; but owing to her condition causing the anæsthetist some anxiety it was not removed. The neck of the sac had before this been closed from within. The abdomen was closed and she made an uninterrupted recovery.

I am indebted to Mr. Robert Milne, Mr. A. J. Walton, Mr. Russell Howard, and Mr. E. C. Lindsay for permission to publish the details of these cases.

A CASE OF CONGENITAL PYLORIC STENOSIS,

WITH INTERESTING SEQUELÆ AND SUGGESTIONS.

BY R. ECCLES SMITH, O.B.E., M.B. LEEDS, F.R.C.S. EDIN.,

SURGEON TO THE TOWN HOSPITAL, BARRY, GLAM.

THIS case of congenital pyloric stenosis necessitates a brief summary of the suggested causes of its origin and perpetuation so ably theorised in the recent work of Gray and Pirie.[1] Congenital hypertrophy of the pylorus depends on a primary antenatal cause which has been attributed to a hyperadrenalism originating and maintaining a continued spasm of the non-striped muscle of the gastro-intestinal tract, with a special selection of the pyloric ring, and—to a lesser extent—of all the sphincters in the tract. This antenatal spasm, having in its response produced the hypertrophy of the pyloric sphincter, is further assisted and continued by other factors, the chief of which are: (1) The inhibition of pancreatic secretion, dependent on the alteration of the gastro-duodenal cycle by the stenosis; (2) superadded gastritis; (3) spasm of the pyloric sphincter initiated by the presence of a skin-tight phimosis; (4) spasm due to unknown causes.

The case below is recorded to suggest that an incarcerated appendix in a hernial sac may be one of the factors not only of primary causation but also of continuation of congenital pyloric stenosis.

History.—The patient, a male infant, aged 3 weeks, was admitted to hospital with all the classical signs and symptoms of congenital pyloric stenosis so aptly described by Gray and Pirie.[1] The stenosis was of the rarer type, being complete at birth and giving rise to immediate vomiting from the first feed, associated with absolute constipation and very marked emaciation. A bismuth meal confirmed the completeness of the block and Rammstedt's operation was at once resorted to. In my zeal to ensure success the duodenum was punctured and was closed by suture and omental reinforcement. A very tight prepuec was observed, but circumcision was not at this stage attempted, owing to the infant's condition. Fourteen days after operation a normal stool was obtained. On the sixteenth day, the infant again had severe gastric upset, with alarming vomiting, at first uncontrolled even by very strict dietary and salines for two days. Circumcision was performed, and again progress was resumed. This sudden upset made me question[2] the possibility of some unknown cause which might give rise to reversed gastric peristalsis and projectile vomiting in these infants, especially after relief of the stenosis. Complete recovery ensued, and at the age of 6 months the mother observed a swelling in the right inguinal region, not previously noted by the mother or by the surgeon.

Operation.—This was not pressed for until the child was 12 months old, and then owing to structural alterations in the wards the child was not admitted until the age of 2 years. The hernial protrusion, although scrotal, was very slight in bulk and was noted to be thickened and irreducible, very suggestive of the association of a hydrocele of the cord with a hernia. At the operation for radical cure the sac was opened and found to contain a large appendix, 3¾ inches long. It contained a small soft fæcal mass, not sufficiently dignified to be called a concretion, about 1 inch from the base. There were no definite adhesions, but the appendix was firmly planted in the sac by a short meso-appendix, the layers of which were part and parcel of the posterior wall of the peritoneal protrusion of the sac. The neck of the sac was too narrow to allow of any small-gut protrusion, and the cæcum could only be pulled into the field by considerable traction; even then there was not a sufficient area for invagination of the stump. The condition at operation suggested that the appendix was in the sac before birth.

Further History.—Uneventful.

Points of Interest.

1. The case presented the rarer type of congenital hypertrophic stenosis, with complete block from birth and added surgical mishap.

2. The alarming vomiting attacks on the sixteenth day after operation apparently relieved by circumcision and palliative measures.

3. The possibility, in view of late findings, that an attack of acute appendicitis may have been the real cause, overlooked at an already anxious time and in so young a subject.

4. The suggestion that the presence of an appendix congenitally placed and fixed in a hernial sac might be one of the factors now classed as unknown causes.

It is well known that a fixed and adherent appendix may cause repeated pulling on the duodeno-jejunal junction, giving rise to duodenal stagnation, and later to definite dilatation of the duodenum; it is also a probable cause of duodenal ulcer, but the suggestion has been much contested. Moynihan's apt term, "appendix" dyspepsia, indicates succinctly the alterations which can take place in the gastro-duodenal cycle-producing symptoms (often admittedly atypical) of an organic lesion of one or other viscus, without any pathological evidence at operation, except in the appendix. It is possible that in the case just described at least one of the "unknown causes" was a fixed appendix in a hernial sac giving rise to stagnation and alteration in the composition of the contents of the duodenum, with a response in the pyloric sphincter producing and maintaining the interesting condition of congenital hypertrophy of the pylorus.

Barry, Glam.

[1] THE LANCET, 1919, ii., 515. [2] Ibid., 1920, i., 678.

A CASE OF RENAL DWARFISM.[1]

BY DONALD PATERSON, M.B., CH.B. EDIN., M.R.C.P.,

PHYSICIAN TO OUT-PATIENTS, HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET, W.C.

THE patient, A. J., aged 6 years, was admitted into the Hospital for Sick Children, under Mr. H. A. T. Fairbank, with the complaint of "knock-knee." He had been in this condition since he was 2½ years old. Previous to the onset of his complaint he had been thought quite healthy. There was no definite history of a previous illness at any time.

From the age of 2½ years he had been steadily getting more and more "knock-kneed" and now he walked only with difficulty. The family history showed three other children, all healthy. No miscarriages were known. The patient had grown very little in the past three and a half years, and is at present only 35¼ in. high instead of 44 in. He is quite bright mentally, his head is well formed, his hands, feets, and arms are small and infantile. The legs show marked genu valgum. There is slight beading of the ribs. The urine, which is acid, has a specific gravity varying from 1004 to 1014. A cloud of albumin is always present. No casts have been seen. The urine is always pale in colour. The urea-concentration test shows the maximum ability of the kidney to excrete urea after 6 g. of urea by the mouth to be 1·9 per cent., while the normal should be 2·5 to 4 per cent. The blood pressure is 100 mm. Hg.

The X rays of the wrists show a "woolly" appearance of the diaphyses with a straight epiphyseal line. The lower ends of the femora show a marked irregularity of the epiphyseal lines with a definite fracture—showing in the lateral view—of the lower end of the diaphysis extending into the epiphyseal line. This appearance is similar to other cases of renal dwarfism shown before this society. That the child is infantile there is no doubt. That he has interstitial nephritis there is good evidence both from the urine and the decreased function of the kidney. That the changes in the bones are not those of rickets there seems little dispute, and the fractures at this site especially seems characteristic of renal dwarfism. Why all cases of interstitial nephritis do not show bone changes I do not know, but I would suggest that the same agent which brought about the renal fibrosis also brought about the bony changes. That this agent is not a dietetic one there seems very little doubt, as this child had been having a diet which included plenty of both the antirachitic and antiscorbutic elements, and in some cases these changes are present at birth, as was shown in a case brought before the Section for the Study of Disease in Children a few months ago.

The fractures are almost certainly due to a weakening of the bone by a deficiency of osteoid tissue and an absence of lime, the bony trabeculæ being replaced by trabeculæ of fibrous tissue, especially so in the region near the epiphyses. Although the urea output is 1·9 per cent. only, I think that operation might be performed on this child with safety if it were thought advisable. I have seen one other case of interstitial nephritis with as low a urea output as the patient survive a fairly long anæsthetic.

[1] The case was shown at a meeting of the Section of Orthopædics of the Royal Society of Medicine on May 2nd, 1922.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF GYNÆCOLOGY AND OBSTETRICS.

A MEETING of this section of the Royal Society of Medicine was held on May 4th, with Prof. HENRY BRIGGS, the President, in the chair.

The PRESIDENT showed a specimen of a

Uterus from a Case of Anæmia.

The uterus weighed 5¼ ounces, and had been removed by Prof. Briggs from a married woman aged 42 years who had one child 17 years old. She was suffering from severe uterine hæmorrhage at the time of the operation. During the last three years she had had severe uterine hæmorrhages, each lasting at least a month, and had been curetted without benefit. Section of the uterus showed neither inflammation nor new growth. He was inclined to believe that such cases had a functional basis.—Dr. HERBERT WILLIAMSON thought these cases arose in reality from chronic metritis—subinvolution following the last pregnancy. In this condition the arteries of the pregnant uterus had not become completely replaced by fibrous tissue, hence the tendency to hæmorrhage. His treatment for such cases was to curette them, and if this failed to show a polypus or malignant disease, to subject them to three exposures of X rays at intervals of three weeks, during which time the patient was able to carry on her ordinary vocation. This produced an artificial menopause and permanently cured the hæmorrhage. If very anæmic, the patient should have a blood transfusion before the first exposure to X rays.—Mr. S. FORSDIKE, after a preliminary exploration of the uterus, preferred to treat such cases by radium, which attacked the endometrium, rather than by X rays, which attacked the ovaries. He had employed radium treatment in 25 cases with good results. The radium was introduced into the uterus on the first occasion after dilatation of the cervix. A second exposure to radium was usually necessary after three months, when the tube was introduced through the cervix, previously softened by glycerine plugs. — Dr. J. P. HEDLEY agreed with the last speaker as to the curative effect of radium, but he felt assured that radium also attacked the ovaries. He had seen a severe menopause in a young girl following radium treatment.—Dr. A. E. GILES suggested referring the specimen to the Pathological Committee of the section. His own feeling was that hysterectomy did not entail much more discomfort than radium or X ray treatment, and had the great advantage of leaving the ovaries intact.—Mr. J. D. MALCOLM had no personal experience of ray treatment, but had found the results of hysterectomy uniformly good. — The PRESIDENT, in reply, said that in this case the patient was brought to his house *in extremis*, and immediate hysterectomy appeared to be the only means of saving her life. His experience of all other forms of treatment except radium was disappointing.

Mr. MALCOLM DONALDSON communicated a description of

An Operation for Radiation of the Iliac Glands and Deep Tissues in Cases of Carcinoma of the Cervix.

The operation to enable radium to be placed deep down in the pelvis near the iliac glands was invented by Prof. Daels, of Ghent, who had performed it in 40 cases. In only four cases were there any complications; in two cases sepsis, and in two cases fatal secondary hæmorrhage. The operation under general or spinal anæsthesia was conducted with the patient in the lithotomy position.

An incision, 4 cm. long, carried down to the deep fascia, was made just internal to the ischial tuberosity. The finger was inserted into the wound and carried along the surface of the obturator internus as far as the inner side of the ischial spine. The finger was then pushed between the two parts of the levator ani, over the surface of the pyriformis until it reached the sacro-iliac synchondrosis. The curved tube (which was exhibited) was then inserted, guided along the finger to the same point, and held in position by an assistant, the distance between the skin and synchondrosis being measured on the scale marked on the tube. An incision, 2 cm. above and to the inner side of the anterior superior spine of the ilium, was then made and carried through the aponeurosis of the external oblique. The finger was then inserted and by blunt dissection carried through the internal oblique and transversalis muscles, outside the peritoneum until the ilio-psoas muscle was reached. Passing over this muscle the finger felt the sacro-iliac synchondrosis and the point of the tube, with the large vessels, to the inner side. The finger was then withdrawn, the point of the tube following. The complete distance from incision to incision was then read off on the tube, and by subtracting from this figure the distance previously measured between the sacro-iliac synchondrosis and the gluteal incision, the distance between the iliac incision and the sacro-iliac synchondrosis was obtained. The difference usually measured 10 cm. The tube of radium to be introduced had a chain attached to both ends. To the upper portion of the chain a safety-pin attached at a distance equal to that of the difference figure already mentioned. Two more safety-pins, 4 and 8 cm. more distal from the radium tube, were added to the chain. The cap of the tube having been removed, the lower chain was drawn through the tube and appeared at the original incision. The curved tube was then withdrawn. The chain could now be drawn upon until the first safety-pin prevented any further movement by acting as a stop at the iliac incision. The radium should then be opposite the sacro-iliac synchondrosis. Upward movement of the radium was prevented by putting a safety-pin through the chain in contact with skin at the ischial incision. At the end of 12 hours the first safety pin at the iliac incision was removed and the radium drawn down 4 cm. At the end of a further 12 hours the next safety-pin was withdrawn and the radium pulled down a further 4 cm. It remained in this position for 24 hours and was then withdrawn altogether. A drainage-tube was left in the lower wound for three or four days. (This was not done in the two of Daels's cases which became septic.) The dose of radium used by Prof. Daels was 25 mg. heavily filtered with aluminium, platinum, and red rubber. Mr. Donaldson preferred black rubber, which he considered safer, as red rubber contained antimony, which gave rise to secondary radiation.

This treatment was, of course, secondary to treatment of the cervix itself and surrounding tissues by radium. He thought that it opened up a new field of possibilities for the treatment of inoperable cases. He had performed the operation successfully in four cases, but in a fifth case, on whom he had previously performed a Wertheim's hysterectomy, he found that the vessels were too adherent to the side wall of the pelvis to allow of the passage of the tube.

Mr. FORSDIKE remarked on the complicated anatomical details of the operation. At a recent congress in France he had heard an operation described of frankly opening the abdomen and putting tubes of radium in position, which he considered to be a safer procedure.—Dr. S. G. LUKER asked whether the operation could truthfully be described as an easy one. It would appear to him to offer increased difficulties in those carcinoma cases where the vessels were surrounded by thickened tissue.—Mr. J. S. FAIRBAIRN could not see any advantage in Daels's operation over open operation. Besides in cases of advanced carcinoma of the cervix the lumbar glands were also involved, and these would not be affected by radiation applied in this way.—The PRESIDENT admired Dr. Donaldson's resource and the anatomical skill which could safely guide a sharp-pointed instrument past the long vessels when matted with growth.—Dr. GILES observed that the instrument passed was curved. When the chain was pulled upon, would it not assume the position of the chord of the arc, and thereby press upon and possibly damage the vessels?

Mr. DONALDSON, in reply, said that he did not know the technique of the open operation, but imagined that it could hardly achieve much since to be effective the radium must be left in position for at least 12 hours. He had found the operation quite easy. If the tube were passed to the outer side of the vessels no serious damage could be done by traction on the chain since it was in contact throughout its length with

the convex wall of the pelvis, and was thus prevented from taking up the dangerous position suggested by Dr. Giles. As regards the lumbar glands, these were not as a rule affected except in very advanced cases, and the operation was designed to deal with carcinomatous deposit in the small lymphatic vessels rather than the glandular deposits.

Mr. J. D. MALCOLM read a paper on

Surgical Shock.

wherein "surgical shock" was attributed to an irritation of sensory nerves. During a severe operation the heart's action might hasten early, in which case an important feature of developing shock was not recognisable, but in a fair number of prolonged operations the pulse-rate for a time hardly quickened. In these circumstances the radial pulse might gradually diminish and disappear completely, whilst the carotid remained forceful and slow. After a time the cardiac action hastened, the pulse became feeble or disappeared everywhere, and the blood pressure and temperature fell. The vascular system became as depleted as in a case of severe hæmorrhage, although little blood might have been shed. Recovery used to be slow and to cause much anxiety, but since fluids have been freely administered a return to normal conditions was generally rapid. The improvement brought about by the administration of fluids offered a proof that as shock developed, fluid was removed from the body. Mr. Malcolm considered from the clinical evidence that stimulation of sensory nerves caused a persistent vascular contraction in spite of the rise of blood pressure in the large arteries which was created by their contraction and by an augmented cardiac force. But contracted arteries necessarily held less fluid than full-sized vessels, therefore fluid must leave them as they contract.

The effects of hæmorrhage during a developing shock were next considered. In shock as in hæmorrhage fluids were transferred within the body so as to correct abnormal relative pressures. This did not necessarily involve a filtration such as occurred through a dead membrane under pressure; and it was not considered inconsistent with Prof. Leonard Hill's teaching that imbibition of fluids by living animal cells is a vital process. Mention was made of cases in which the sweat glands could not be induced to act and in which the clinical symptoms of surgical shock did not exist. Mr. Malcolm quoted Crile's opinion that stimulation of sensory nerves caused first a rise and later a fall of blood pressure. This corroborated the clinical evidence. Through all Crile's writings there ran the idea that a fall of blood pressure was necessarily due to a relaxation of vascular tone, and that a great fall indicated vaso-motor exhaustion. This conclusion could not be accepted by those who recognised the significance of leakage in all hydraulic mechanisms. In man the loss of fluid by sweating as shock develops was obvious. In the dog it was not so, but pallor of the tissues, blood concentration, and low blood pressure were found. It was argued that by omitting all consideration of the effects of loss of fluid from the body, Crile missed the true explanation of the nature of shock. It was difficult to introduce fluids into and retain them in the vessels when shock was severe and profound. This difficulty, and the facility of absorption of fluids during convalescence were easily understood if the vessels were tensely contracted when shock is fully developed and relaxed as recovery took place. The facts were not readily reconcilable with the teaching that some part of the vascular system dilates during shock and therefore contracts during recovery.

Mr. Malcolm contended that a state of shock arises from an uncomplicated stimulation of sensory nerves. He considered the conditions of spinal anæsthesia a proof of this. By anæsthetising the spinal cord a development of shock from stimulation of nerves arising below the blocked portion of the cord was absolutely prevented.

Dr. A. LAPTHORN SMITH enumerated the factors which he had found chiefly instrumental in producing shock during surgical operations, which was now less seen than formerly. These were: (1) prolonged anæsthesia, especially with chloroform; (2) the tapping or removal of large tumours such as ovarian cysts; (3) excessive hæmorrhage; (4) unnecessary pre-operative purgation; and (5) excessive handling of the viscera. The administration of morphia before the anæsthetic and of rectal saline during the operation materially helped to prevent shock.—Mr. DONALDSON considered that Mr. Malcolm's theory was abundantly proved by war experience. It was obvious that the contracted vascular system must contain less fluid. He thought that the contraction of the arteries was protective—an attempt to keep up the blood pressure. Mr. Malcolm had suggested the administration of amyl nitrite during shock in order to overcome the contraction of the vessels. Mr. Donaldson inquired whether this treatment had been found successful; it appeared to him to be directly contrary to Nature's protective reflex.—Dr. LUKER pointed out the difficulty of differentiating between conditions of pure shock and those of shock accompanying hæmorrhage. Patients suffering from ruptured ectopic gestation might be pulseless. Should they be treated as cases of shock or as cases of hæmorrhage? He had seen shock occur after a normal labour in which a patient had lost not more than one pint of blood and was not sweating, yet no pulse was palpable. Where did the fluid go in these cases?—The PRESIDENT commented on the enthusiasm with which Mr. Malcolm had pursued this subject. He thought that the capillaries must be the points of leakage from the hydraulic mechanism.—Dr. FAIRBAIRN inquired what became of the fluid lost by the vascular system. It could not all be accounted for by the loss by perspiration.—Dr. GILES agreed that the arteries were contracted and consequently held less fluid, but the same did not necessarily apply to the whole vascular system, for it might be that the capillaries and veins held more. Pure shock he considered to be rare; many deaths attributed to it were in reality due to hæmorrhage or sepsis. He had not seen shock from the removal of a large tumour.

In reply, Mr. MALCOLM said that in pre-anæsthetic days he had seen patients in a state of shock before the operation began; he agreed that anæsthetics could cause shock by toxæmia. The length of the operation and the amount of blood lost were also important, although hæmorrhage and shock were different conditions. The injection of fluid was helpful, but they could not force fluid to remain in the vessels. He did not consider the arterial contraction was truly protective; he had administered amyl nitrite on theoretical grounds, although he could not claim to have produced much benefit thereby. Shock and hæmorrhage could be differentiated from the fact that in the former the blood was concentrated, and in the latter diluted. The theory that during shock the blood was collected chiefly in the splanchnic area was abundantly disproved by observation during abdominal operations. He thought it possible that the loss of fluid from the blood in shock occurred from the smaller veins and capillaries into the lymphatics and tissue spaces, which acted as reservoirs.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held at the University of Sheffield on April 27th, Dr. GODFREY CARTER, the President, being in the chair.

Mr. GEORGE WILKINSON demonstrated on the epidiascope an apparatus illustrating the resonance theory of hearing as applied to the cochlea.

Mr. HERBERT CAIGER read a paper entitled

Ophthalmic Pensioners: Some Points of Interest to the General Practitioner.

He said that out of a group of 700 cases there had been 7 cases of total blindness, about 50 cases of loss of useful vision in one eye, 53 cases of removal

of one eye, and only 1 case of sympathetic inflammation. Penetrating septic wounds of the eye, with lodgment of a foreign body, had been very numerous in the war. But thanks to the careful work done in the hospitals overseas, sympathetic cases had been very rare. Most cases of loss of vision in one eye had been caused by "concussion changes." These might be compared to the fractures in bones due to indirect violence. Bullets passing through the bones below or at the sides of the orbit, without touching the eye, caused hæmorrhages or ruptures in the choroid or retina. The macular region was specially affected by these concussion changes. They had been specially studied by Prof. F. Lagrange, who attributed them to violent oscillatory waves transmitted to the fatty contents of the orbit, almost fluid at the body-temperature. It was specially important to examine for errors of refraction three groups of pensioners:—(1) Men who had lost the sight of one eye: these men were as a rule obsessed with the idea that any defect of vision that troubled them must be due to "one eye having to do the work of two." In most cases any defect of vision (except the inevitable loss of field on the affected side) was due to error of refraction in the uninjured eye, and could be remedied by glasses. (2) Cases of headache following head injuries: here headaches, very possibly due to eyestrain, were liable to be put down to the head injury, by doctor as well as by patient. (3) Neurasthenic cases: such symptoms as depression or mental confusion, as well as headache, might be due entirely or in part to eyestrain from astigmatism, &c. An interesting case of functional blindness was described by Mr. Caiger. The patient was "blown up" by a shell explosion in 1914. He lost smell, taste, and sight. Smell and taste were restored by hypnotic treatment in a short time. But for two and a half years recovery of sight was very imperfect, with relapse from time to time, especially if he was subjected to worry. In 1917 cure followed treatment by isolation in hospital, blistering, and other methods, including the shock of a bucket of cold water thrown over him unexpectedly in a warm bath. The patient showed other neuropathic symptoms, such as tremor. Complete and lasting recovery ensued. Cases of malingering of every grade had been met with. Mr. Caiger had come across at least 20 cases claiming that the defective vision of an amblyopic squinting eye was due to or aggravated by service. Three cases of "conjunctivitis artefacta" were described. In one of these cases deliberately produced abrasions of the cornea, on three occasions, were superadded. In another case, the man's documents gave a record of "persistent chronic conjunctivitis, liable to acute exacerbations," commencing in 1917 and lasting for five years; for three years he had enjoyed a pension of 60 per cent. or more; minute examination revealed very fine foreign particles in the conjunctival sac; when he was kept under observation for an hour the acute redness of the eyes diminished greatly; when he had been left in a room alone for a moment an "acute exacerbation" followed at once, with increased redness and profuse watering of the eyes. The nature of the irritant used was not ascertained. Only one case had been seen where gassing appeared to have caused serious permanent damage to sight; in this case the whole of the left cornea, and the lower half of the right, were opaque; a visual iridectomy had been done above in the right eye, and vision with glasses was 6/24.

Discussion.

Mr. P. J. HAY referred to the useful work done in the war by general practitioners who took up ophthalmic work overseas.—Dr. E. F. SKINNER mentioned some cases of conjunctivitis artefacta in schoolboys, induced by blowing slate-pencil dust in one another's eyes.—Mr. A. CONNELL described a case of extensive rupture of the choroid, due to indirect violence, which had occurred in civil practice.—Dr. A. E. NAISH, referring to functional blindness, pointed out the power possessed by the cerebral cortex of focusing attention on any particular area of consciousness—e.g., sight, hearing—or, on the contrary, of completely excluding it.

The PRESIDENT congratulated the Society on the valuable series of papers this session had produced.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.

A MEETING of the Metropolitan branch of this Society was held at 1, Upper Montague-street, W.C., on April 28th, with Dr. W. H. HAMER, President of the branch, in the chair, when a paper was read by Dr. G. E. OATES (M.O.H., Bethnal Green) on

Diphtheria Carriers and their Connexion with Clinical Diphtheria.

Dr. Oates said it was often difficult to say when the condition of patient ends and that of carrier begins. In diphtheria, after all membrane had disappeared, and after the danger of heart and nerve sequelæ had passed, the bacillus often persisted in the throat for weeks or months. This was one type of carrier which usually cleared up in time, but might persist for long periods. It was hard to say whether such persistent carriers were, in fact, carriers before clinical diphtheria developed, but it was certain that carriers might develop diphtheria and even die of it. A similar fact was observed in cerebro-spinal fever, but as the meningococci had to penetrate from the naso-pharynx to the meninges the conditions were different. The other type of diphtheria carrier harboured the bacillus without giving any history of clinical diphtheria. It was, however, difficult to exclude the possibility of a mild and overlooked attack of the disease. Again, there was a similar condition in regard to cerebro-spinal fever. Care was necessary in getting at the nidus in the nose or throat when taking swabs from some carriers, and 48 hours' incubation was necessary before a negative result should be accepted; in clinical cases a positive result was easily obtained. It was also necessary to test the bacillus for virulence. Some held that an avirulent bacillus might be the parent of a virulent germ, and that all positive carriers should thus be looked upon with suspicion. The weight of evidence, however, was against this view and in favour of the harmlessness of avirulent carriers. It also appeared that by long sojourn in the throat bacilli originally virulent might lose their virulence and that non-contact carriers were usually avirulent. Unless the virulence could be tested all carriers should be regarded as a possible source of a virulent organism. Dr. Oates considered that all carriers, whether virulent or not, should be treated to produce a healthy condition of the throat or nose. In nasal cases the usual treatment would be the curetting of post-nasal adenoids and the establishment of nose-breathing, which usually cleared up the rhinitis and the carrier condition. In tonsillar infection enucleation of the tonsils should be performed, partial removal being insufficient. Good results had also been reported from the use of a diphtheria vaccine. Treatment of the nose and throat with antiseptics was not curative, but should be recommended as a precautionary measure; carriers should have a separate bed or room and care be taken with towels and toothbrushes.

Where diphtheria germs were proved to be virulent strict isolation should be the rule. The law recognised the carrier condition in typhoid and dysentery, but, not, unfortunately, in diphtheria; it was safest to admit the virulent carrier to isolation hospital, but the difficulties and dangers of this were well known to all who had experience of fever hospital work. An advantage of keeping him at home was that he could be given the necessary expert treatment of the naso-pharynx. Dr. Oates enumerated the precautions advisable if the patient were kept at home, and then considered the new method of testing the contacts for immunity and immunising the susceptibles, which offered a precise and safe way of dealing with a carrier

provided that his circle of contacts was confined within the home. He suggested that more opposition was likely to be raised to the Schick test, which had a superficial resemblance to cowpox vaccination, than to the toxin-antitoxin injection. He referred to the fact that a greater proportion of persons were susceptible between the ages of 6 months and 5 years than at more advanced ages, and suggested that the best plan would be to inject with toxin-antitoxin all the contacts of a carrier between those ages, and to apply the test to those who were older and inject the susceptibles only. In view of the interval which must elapse before the establishment of active immunity he suggested that contacts under 5 should first have a prophylactic dose of antitoxin. Dr. Oates was of opinion that the commonest type of carrier was the missed case of diphtheria, particularly apyrexial diphtheritic rhinitis. Parents should be taught the importance of a medical examination in every case of sore throat or purulent nasal discharge. In isolation hospitals, where the cases are swabbed before discharge, he advocated that in positive cases the virulence test should be performed at an early date and not after prolonged detention of the patient.

Discussion.

The PRESIDENT referred to the conflict of opinions about the carrier problem and the administrative difficulties in dealing with contacts. He said that some years ago two houses had been taken in Cambridge for the segregation of diphtheria carriers. At the end of the first week the first house was full, and by the next week so also was the second, when the scheme came to an end for lack of space. It was humorously remarked to him at the time that in view of the great number of carriers found for so many diseases, the only practical method was to segregate the healthy!

Dr. R. KING BROWN (M.O.H., Bermondsey) considered the proposals of the reader of the paper impracticable in London. For many years he had swabbed contacts, and had failed to trace any cases to carriers devoid of clinical signs. Those with such signs, including sore throat or rhinitis, he sent into hospital. There had been a great increase in carriers during the recent epidemic of diphtheria, a considerable proportion of whom gave virulent bacilli. These could hardly be dealt with without a large skilled staff.

Dr. J. FENTON (M.O.H., Kensington) supported Dr. Oates's views. He protested against making the distinction between clinical and bacteriological diphtheria, and claimed that the division should be between infectious and non-infectious cases. Scarlet fever and diphtheria hospitals were for isolation of infectious cases rather than for treatment. Virulent carriers were often more dangerous than clinical cases, and until they isolated them they were wasting their time in isolating clinical cases. Although in London it was often not possible to work out the lines of infection, elsewhere he had traced cases arising from persons with chronic fibrinous rhinitis.

Dr. T. SHADICK HIGGINS (M.O.H., St. Pancras) said that work in the direction of the detection and isolation of carriers was experimental, and had not proved very effectual in urban communities. A complete campaign in this direction, though the results were problematical, would require large medical staffs for that alone. In the majority of instances there was only one case of diphtheria in a family outbreak, and the most that could be expected from the discovery and isolation of carriers in the household contacts was a reduction amongst the minority composed of secondary household cases. The same applied to Schick testing and immunisation of family contacts. He had had to do with many virulent carriers which had never obviously caused any diphtheria cases, and he did not think any good would come from the isolation of the few of such cases which happened to be discovered. He was, however, convinced of the danger of the well-known fibrinous rhinitis, which was to be regarded as a form of diphtheria, more prone than the faucial variety to scatter infection; and these he always isolated whenever he found them.

Dr. J. G. FORBES (L.C.C.) gave some interesting figures in connexion with the bacteriological examination of London school children in the L.C.C. laboratory during the year ended March 31st, 1922. These were mostly selected by having been associated in some way with diphtheria outbreaks; 6973 children were tested, and bacilli morphologically indistinguishable from diphtheria bacilli were found in exactly 10 per cent. The germ was isolated in 236 of these 697 "positives"; the pure cultures were examined at the Wellcome laboratories, and 63 per cent. were found to be virulent. In 140 of the 236 tested for virulence there was definite defect in the nose or throat, and of these 140 63 per cent. (the same proportion) were virulent. Amongst those with a history of sore-throat 21 were virulent and 13 avirulent; with a past history of diphtheria 10 virulent and 2 avirulent; with a family history of sore-throat or diphtheria 7 virulent and none avirulent. Amongst home and class diphtheria contacts 24 were virulent and 7 avirulent. They had come across nine families with 2 carriers each, five with 3 each, and one with 4, but they had not examined whole families to any extent. In these all were virulent in some families, but in other families some were virulent and some avirulent. Similar data were obtained amongst carriers from the same classes. They had found the two kinds of carriers quite distinct, the virulent not becoming avirulent. They did not exclude the avirulent from school, but the virulent they kept away until after three negative results. Sir Frederick Andrewes had suggested isolation schools for diphtheria carriers, and he thought that such places might perhaps be useful.

Dr. F. W. HIGGS (Ministry of Health) said that the Ministry did not desire carriers to be notified as cases of diphtheria; such notification sometimes seriously falsified the statistics. He was of opinion that only virulent carriers infected others, and they only when there was some associated abnormality allowing of the multiplication of the germ and its diffusion, as by coughing, sneezing, &c. The most important source was the missed case rather than the convalescent case. The M.O.H. would do well to keep an eye on cases of suspicious throat, enlarged glands, and mumps. Very few carriers were carriers for more than three months. At least four-fifths of the carriers in the general population were avirulent. (Dr. Forbes's cases were specially selected.) He considered it unnecessary to detain diphtheria cases in hospital after they were clinically well, and thought it would be more useful if they were examined before discharge by a nose and throat surgeon than by a bacteriologist. Some chronic carriers were intermittent, causing infection after they had given negative swabs; not even three negative swabs were really conclusive. Dr. Higgs concluded by saying that he would like to try the effect of treating the nose and throat of chronic carriers with hypertonic salt solution with a view to flushing the niduses of infection with bactericidal lymph.

Dr. C. J. THOMAS (L.C.C.) said that Dr. J. A. Arkwright and he had frequently found virulent carriers in schools where there was no outbreak of diphtheria. They considered that the important distinction lay between the carrier who spread his germs and the carrier who did not. Their method was to swab all cases of nasal discharge, and to examine the spit from the others. If the saliva contained the bacilli the subject was a "leaking" carrier. They came to the conclusion that carriers were generally harmless unless they had some clinical signs. It was important to realise that a large proportion of the population was immune to diphtheria. This was believed in earlier days and was now confirmed by the Schick test. If carriers were eliminated, the immunity of the population would presumably disappear, leaving it open to a tremendous outbreak of the disease should infection be imported.

Dr. G. CLARK TROTTER (M.O.H., Islington) referred to an outbreak of diphtheria in an institution which is being dealt with by the isolation of the virulent contacts.

Dr. F. M. TURNER (South-Eastern Hospital, M.A.B.) said that he was greatly struck with the considerable consensus of opinion expressed about the limited utility of work amongst carriers, and that he was in agreement with it. In 1906 he had come to the conclusion that no benefit was to be derived from swabbing recovered cases before discharge from hospital and from detention of positive cases; and he had since seen no reason for withdrawing from that position.

SCOTTISH SOCIETY OF ANÆSTHETISTS.

A MEETING of this Society was held on April 15th in the rooms of the Medico-Chirurgical Society, Aberdeen, with Dr. J. JOHNSTON, the President, in the chair.

Dr. H. P. FAIRLIE made a statement of the plans for the one-day Anæsthetics Section of the forthcoming meeting of the B.M.A. in Glasgow, of which Dr. W. J. McCardie will be President.

Dr. A. OGSTON read a paper entitled

Notes on the Administration of Ether by the Perhalation Method.

He pointed out that this system now replaces chloroform as the stock method for abdominal surgery, and that the standard which it has to meet is therefore a high one in respect of abdominal relaxation and quiet respiration. If the points referred to later are attended to, there is no difficulty in reaching the required standard. To be effective as an inducing agent, as much as 18 per cent. or more of ether vapour is necessary, whereas Hewitt and Syme have shown that not more than 14 per cent. is available when given on the ordinary mask. As much or possibly more ether is vaporised by expiration than by inspiration. By a simple device, Dr. Ogston demonstrated to the audience that ether vapour does not rise in an appreciable quantity more than half an inch above the mask, whereas it is easily detected by touch, smell, and sight many inches below it. The apparatus used by him provides for the conservation of this ether vapour of expiration. It consists of a Bellamy Gardner mask, upon which is erected a secondary frame composed of six uprights, joined at their distal extremities by a metal ring; a towel pinned round the uprights furnishes a cylinder, at the bottom of which the ether vapour collects. The aperture is as wide at the top as at the bottom, so that all the gauze is available for the reception of drops of ether. Personally, Dr. Ogston prefers to keep the head in the mesial position even during deep anæsthesia, so that the apparatus is suitable both for induction and maintenance. Some 12 to 16 layers of gauze are used on the mask itself and great care is exercised as to the fit between face and face-piece. Another point on which emphasis must be laid is the even distribution of the ether. If all drops fall in one spot, freezing takes place and the ether percentage is lowered. Dropping must, of course, be continuous. In favourable cases, induction takes six to ten minutes. With the use of the cylinder, the temperature in front of the mask does not fall below 50° or 60°. After anæsthesia is established and less ether is being used, the temperature within the cylinder rises to 70° or over. The economy of ether is such that over-dosage is quite possible. No doubt there is also some concentration of CO_2, but rarely of such a degree as to do any harm. Occasionally one sees shallow breathing and duskiness which might be attributable to this cause. Such symptoms pass away at once if the mask is withdrawn for a few respirations and is turned upside-down, to empty the gaseous contents of the cylinder. A free air-way is essential. He believes greatly in Hewitt's air-way; when necessary, he even puts a gag or prop between the teeth before beginning induction. He believes in going very slowly at first. This really saves time in the end, as it causes less mucous and respiratory embarrassment. In order to secure this result he often starts with the apparatus upside-down, having the aperture of the cone adapted to the face and dropping the ether upon the inside of the mask. Before the operation is started he abolishes the corneal reflex and obtains medium dilatation of pupils. Later, he allows the corneal reflex to reappear. He regards sighing as rather a favourable sign, showing sufficiently deep anæsthesia. Moaning, he considers, indicates too deep a level.

Dr. J. S. ROSS thought the method really provided for induction of even powerful subjects by ether alone. Frankly, he personally used a little chloroform, not more than a drachm, during the induction stage, but the lecturer evidently did not find this necessary. He asked how much ether Dr. Ogston used, and whether he had formed any impression as to ethanesal.—Dr. D. LAMB thought induction by ether alone was rather slow, and would like to hear some more details of Dr. Ogston's experiences in this respect. He did not agree with Dr. Ogston as to the meaning of moaning, which he considered indicated a light, not a deep anæsthesia.—Dr. W. BARRAS, Dr. FAIRLIE, and Dr. R. S. FREW continued the discussion.—Mr. G. H. COLT, speaking as a surgeon as well as a visitor, drew attention to the difference between open ether given by the expert to a prepared patient, and by the novice to a patient who had not had morphia and atropin. The expert anæsthetist rendered the performance of difficult operations comparatively easy. He suggested that some form of muscle tonometer might be an advantage during the different stages of an operation, especially for teaching purposes.

The PRESIDENT gave personal testimony to the success of Dr. Ogston's method. He believed that to those who had not made use of some such assistance to the ordinary open-ether method, the facility with which Dr. Ogston induced anæsthesia by his method would be a great surprise.—Dr. OGSTON, in reply to questions, stated that he used 1½ oz. to 2 oz. of ether for the induction and completed the first half-hour, as a rule, by 4 oz., including the induction stage. These quantities are for average cases. In debilitated cases, 1 oz. may suffice for induction, while in robust alcoholics, as much as 2 or 3 oz. may be required. He had tried ethanesal but did not now use it.

Dr. HOME HENDERSON read a paper entitled Some Considerations on Gas and Oxygen, a précis of which will be circulated to members for future discussion.

MEDICO-PSYCHOLOGICAL ASSOCIATION.—The next quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland will take place on Thursday, May 25th, at 11 A.M., at 11, Chandos-street, Cavendish-square, W. 1, and at 3 P.M. at the L.C.C. County Hall, Spring Gardens, London, S.W. 1, under the Presidency of Dr. C. H. Bond. The Educational and Parliamentary Committees and the Council will meet on the previous day. After the election of members and formal business, Sir Frederick Mott will read a paper entitled the Genetic Origin of Dementia Præcox.

In connexion with the meeting Sir Maurice Craig will deliver the third Maudsley Lecture, at 3 P.M., at the L.C.C. County Hall, his subject being Some Aspects of Education in Relation to Mental Disorder.

An informal dinner will be held provided a sufficient number of members send intimation that they wish to attend. Members wishing to dine are requested to notify the intention to Dr. R. Worth, hon. general secretary, seven days beforehand.

LONDON HOSPITALS FLAG DAY.—The Joint Council of the Order of St. John and the British Red Cross Society will hold a flag day on Wednesday, May 24th (Empire Day). They are working in close connexion with the organising committee of the combined appeal. The flag day will cover the whole of the 15-mile radius from Charing Cross. Local committees, consisting of representatives of municipalities, urban district councils, hospitals, and Red Cross branches, will carry out local arrangements. An appeal is made for additional volunteers to sell flags. Offers should be sent direct to the secretary, Empire Flag Day, Red Cross offices, 19, Berkeley-street, W. 1.

Reviews and Notices of Books.

TREATMENT OF INJURIES OF THE PERIPHERAL SPINAL NERVES.

By Sir HAROLD STILES, K.B.E., F.R.C.S., and Miss M. F. FORRESTER-BROWN, M.S., M.D. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1922. Pp. 180. 15s.

UNTIL the war our knowledge of nerve injuries was relatively incomplete, and although the work of Sherren and Head and others had done much to establish this subject upon a sound basis, cases were insufficient to allow of a wide investigation. During the war an enormous number of nerve injuries had to be treated, but owing to the difficulties in diagnosis and technique of treatment there was perhaps no branch of surgery in which so many errors were made. Success in treatment not only required accurate diagnosis and difficult operative measures, but prolonged and careful after-treatment was essential. Now that only isolated cases are likely to be met with, it is essential that surgeons having to deal with them should be able to benefit by the experience gained during the war, and a book which embodies this knowledge will soon become indispensable to the operating surgeon. Of the many monographs and papers which have been published upon the subject there is none with a clearer vision and wider range than the volume just issued by Sir Harold Stiles and Miss Forrester-Brown.

The authors lay stress upon the fact that successful investigation and treatment are based upon a wide knowledge of the anatomy, not only of the normal conditions, but of the variations which so commonly occur. The opening pages are therefore devoted to a description of the anatomy of the more important nerve trunks. These descriptions are so concise and compact that the relations and the motor and sensory distributions may be seen at a glance. These chapters are followed by an account of the general principles of diagnosis and the methods of routine examination which could not be bettered. It is curious that among the causes of failure of response to galvanism and faradism, fibrosis and death of the muscle should not be mentioned; for in actual practice the question that the surgeon has so often to ask, when dealing with old lesions, is whether there is sufficient muscle tissue left to allow of recovery taking place. A most useful section is that devoted to difficulties in diagnosis and the various methods by which the movements of a paralysed muscle may be simulated by those of neighbouring muscles. The chapter dealing with the indications for operation is manifestly based upon a wide experience and will be found of great help. It is interesting to learn (p. 47) that in the authors' experience the sensory loss following an injury of the external popliteal nerve alone is insignificant. Stress is laid on the fact that the causes controlling recovery are at present not fully understood. Cases are described in which there has been great improvement even when the operation was performed several years after the injury; in other cases recovery may be very slow so that only a partial improvement, even after two or three years, does not negative an ultimately complete recovery. An interesting conclusion is that the methods of wrapping an injured nerve in cargile membrane, fascia, fat, or vein are of no value. These methods have so often been discussed that an authoritative statement, based upon a wide experience, is of considerable importance. The section of general conditions is followed by a clear description of the symptoms and treatment of lesions of individual nerves. The illustrations, very good throughout the book, are exceptionally so in this section.

The book as a whole is beautifully produced, and can be strongly recommended as the most valuable treatise upon this subject which has yet been published.

LE PROBLÈME DU CANCER.

Par WILLIAM SEAMAN BAINBRIDGE, A.M., Sc.D., M.D., Professeur de Chirurgie, New York Polyclinic Medical School and Hospital; Chirurgien et Secrétaire des Recherches au New York Skin and Cancer Hospital. Traduit de l'Anglais par le Dr. HERTOGHE D'ANVERS, Membre titulaire de l'Académie Royale de Belgique, d'après la première édition de la Macmillan Company de New York. Presse de Trois Rois, Louvain Universitaire. 1922. Pp. 453.

THE first edition of this work was published in English in 1915. This edition, published in French, deserves special notice as one of the first books issued from the press of Louvain University since the destruction by fire of its buildings. Moreover, the book has been revised and brought up to date, and contains much new matter. The importance of early diagnosis is again emphasised in order that prompt surgical intervention, with the aid in some cases of X rays or radium, may be undertaken. Prof. Bainbridge's belief in the efficacy of medical measures in the treatment of cancer is faint, and he gives various reasons, statistical and otherwise, for his great faith in judicious and skilful surgery. His views on the value of X rays in the treatment of certain forms of malignant disease appear to be fair and sufficiently conservative. The last chapter of the book deals with the education of the public to the need of seeking competent advice at an early stage of the disease.

The book, which has had the good fortune to attract a very distinguished translator, is comprehensive and practical and may be recommended.

SYPHILIS UND NERVENSYSTEM.

Fourth revised and enlarged edition. By Dr. MAX NONNE, Professor of Neurology in the University of Hamburg, &c. With 169 illustrations in the text. Berlin: S. Karger. 1921. Pp. 1019.

IT is some five or six years since the third edition of this standard monograph made its appearance, but in spite of (and possibly also as a result of) the intervention of the war syphilology, and in particular the study of neurosyphilis in all its aspects, have made distinct progress. Among the sections of the subject to which this statement is especially applicable are those on the treatment of neurosyphilis, the occurrence of neurosyphilis in the third generation, new reactions and tests in the cerebro-spinal fluid, and the clinical and pathological diagnosis and curability of general paralysis. Dr. Nonne has been able, notwithstanding obvious difficulties, to include in his new edition the results to date of an immense amount of work credited to the English and American schools—hence this volume of over 1000 pages, which, representing as it does the accumulated knowledge of many minds in regard to a question of extreme practical importance, is sure of a cordial reception. We hope, as in the case of an earlier edition, that it may be made available for those who are unfamiliar with the German language.

The book covers the whole ground of neurosyphilis, though it should be stated that Nonne is still somewhat in doubt as to the precise nature of tabes and general paralysis, or rather as to their precise relation to preceding syphilis. Admitting frankly that the long "fight" over the tabes-lues question has ended in a "victory" for the teaching of Fournier and Erb, he declares that the rôle played by the organism and the toxin in the genesis of the disease remains to be determined, and the same is true also of general paralysis. He does not therefore, unfortunately, furnish a description of these conditions; he is only sure that "der Erreger der Syphilis" may also, somehow, cause the subsequent development of tabes or general paralysis. It is interesting to note that Nonne accepts the occasional existence of a monosymptomatic Argyll Robertson pupil as evidence of preceding syphilis which, if the blood and fluid tests are negative, may justifiably be considered "dead"—i.e., the pupil phenomenon may simply be a "cicatrix." No explana-

tion is offered of the early and common occurrence of the sign in neurosyphilis, and in the list of non-syphilitic conditions occasionally giving rise to the sign we could find no mention of the important group of tumours in the vicinity of the iter and region of the superior colliculi. Varieties of meningitis receive full consideration, with the exception, perhaps, of meningitis syphilitica acutissima, a condition which presents the closest resemblance clinically to any acute meningitis such as epidemic cerebro-spinal meningitis, and in which the diagnosis may at first be obscure, spinal fluid examination notwithstanding.

In his interesting and valuable chapter on the treatment of neurosyphilis Prof. Nonne says that the results obtained by the intraspinous method of Swift-Ellis have not, in his hands—in cases of tabes, general paralysis, and cerebro-spinal syphilis—been different from those following the employment of older methods. The volume is well illustrated and indexed, and a full bibliography is appended.

THERAPEUTICS.

Practical Medicine Series, 1921. Vol. VI. Pharmacology and Therapeutics. Preventive Medicine. By BERNARD FANTUS, M.D., Associate Professor of Therapeutics, Rush Medical College (Pharmacology and Therapeutics); and WM. A. EVANS, M.D., Professor of Sanitary Science, Northwestern University Medical School (Preventive Medicine). Chicago: The Year Book Publishers. Pp. 386. $1.75.

IN this series the year's work is dealt with in eight volumes, allowing the general practitioner, for whom the series is primarily intended, to buy as much or as little as he desires; but if the rest of the series are as satisfactory as Vol. VI. it would seem that the 12 dollars required for the complete set would be well spent. Attention is given to most American and British papers worthy of summary and to a certain number of foreign journals. Extracts extend up to December, 1921, so that the book is well up to date. In this volume all the therapeutic questions of the year are dealt with. Radium and X rays, quinidine, and heliotherapy receive especial notice, but the balance is well maintained. The preventive section also is an effective epitome of what has been written recently. The Schick diagnosis and treatment are fully considered; as are also influenza and the lowered mortality of children; encephalitis lethargica on the other hand receives but scant notice, and none of the papers quoted are from American sources. California seems to be even more lax in vaccination than England, and to suffer accordingly. We can recommend this volume to all interested in current work on therapeutics and preventive medicine.

Manual of Physio-Therapeutics. New and revised edition. By THOMAS DAVEY LUKE, M.D., F.R.C.S. Edin. London: William Heinemann. 1922. Pp. 480. 25*s*.

THIS book deals with a heterogeneous assortment of therapeutic measures, of which some come into the sphere of the electro-therapeutic specialist; others concern the spa physician and the masseur, while the simplest ones can be applied in the household. We look upon the volume as suitable for the practitioner rather than for the specialist. Its general scheme is excellent, and the sections are well chosen. The pictures also are well adapted to the contents and facilitate reading. But the volume would gain much in weight and style if it were less verbose, if cheap gibes at Germany were omitted, if the writing were more precise. What is the meaning of "one of us" on p. 47? Why after the statement on p. 264 that there are four types of climate are three only described? Why are sand baths and peat baths given under the page heading of Nauheim Baths? Some of the statements hardly bear close inspection. The statement that the red cells of the blood increase 15 per cent. after electric-light baths should surely be qualified by some reference to factors of time and disease. Vibratory massage may indeed be useful in cases with jaundice and pale stools, but such treatment should surely not be ordered (see p. 172) irrespective of diagnosis. The section on dietotherapy might well be omitted. It is not full enough to be of much value, and increases the size of the book without compensatory advantage.

For the practitioner who wants to know what are the various treatments in current use and where they can be obtained the book can be recommended. And all readers will find much that is interesting in its varied contents.

LES TUMEURS DU CERVEAU.

By Prof. VIGGO CHRISTIANSEN, Physician to the Royal Hospital of Denmark. With an Introduction by Prof. Pierre Marie. Paris: Masson et Cie. 1921. Pp. 337. Fr.25.

IN the form of a series of lessons or lectures Prof. Christiansen has given us a very readable account of the symptomatology of cerebral tumours, based on the clinical and pathological description of a large number of personal cases. Doubtless his audiences, who actually saw them, would carry away a better idea of the cases than the reader can be expected to do, but so graphic are his pages that he almost makes his patients live before us. The value of the work resides largely in this masterly faculty of descriptive analysis; the types of cases illustrated comprise nearly all of the common and many of the uncommon varieties of intracranial neoplasm. Frontal and temporo-sphenoidal tumours, however, do not, apparently, come under Prof. Christiansen's purview, nor have we found records of pineal, corpus callosum, and other localisations. If not, then, to be regarded as a complete monograph on the subject, the book embodies the wide experience of a distinguished Danish neurologist, and may be perused profitably for its clinical and diagnostic worth. The results of the radical operation for cerebral tumour in some 33 personal cases do not, in the author's own words, "justify any enthusiasm" for surgical treatment, and yet they show that it is the sole method which is ever followed, though too rarely, by striking success.

ETHICS.

By ARTHUR LYNCH. London: Cassell and Co. 1922. Pp. 323. 7*s*. 6*d*.

"The greatest problem presented to the human mind, it seems to me, is that of ascertaining the ultimate purport of all problems. In this phrase we express the veritable meaning of ethics."

WE gather from Mr. Lynch's preface, of which the passage just quoted forms the first paragraph, that this is the problem which he set himself to solve, and he has made an elaborate attempt to provide the solution. If he has failed he seems to have failed in good company, for, from his own general concluding summary we note that, in his opinion, previous philosophers are mostly deficient and inconclusive. No one will be surprised at that.

In Part II., Chap. 1, we learn that Mr. Lynch made a thorough examination of psychology and also of "all the processes that lie at the base of mathematics," and has thereupon formulated 12 fundamental processes of psychology by the use of which he can "posit" the fundamental principles of ethics—namely truth, energy, sympathy. In Part III. Mr. Lynch discusses the question of the immortality of the soul, and Part IV. deals with forms of government, war, and problems of social life and ethics. Having arrived at the end of the book we are left with much the feeling which the ordinary man has at the end of an unsatisfactory dinner—i.e., he cannot eat any more and yet he is still hungry. For Mr. Lynch does not seem to us, for all the 323 pages of argument and citation, to have solved any of the difficulties inherent in the comprehension of "the greatest problem." Wide experience and reading have enabled him, however, to write many interesting passages.

THE DEFECTIVE DELINQUENT AND INSANE.

The Relation of Focal Infections to their Causation, Treatment and Prevention. By HENRY A. COTTON, M.D., Medical Director, New Jersey State Hospital at Trenton. London: Humphrey Milford. 1921. Pp. 201. 12*s.* 6*d.*

CONSIDERABLE stress is laid in this work upon the influence of chronic infection in the causation of manic-depressive insanity, dementia præcox, chronic delusional states and psychoneuroses, such as hysteria neurasthenia, and psychasthenia, as well as feeble-mindedness and moral imbecility. With the institution of "detoxication treatment" the "spontaneous recovery rate" in New Jersey State Hospital, which in the decade prior to 1918 was 37 per cent., is now said to have reached 77 per cent. The steps taken to attain so glowing a result have certainly been thorough. The jaws of every patient are radiographed as soon as possible. Mere extraction of infected teeth is not sufficient. A thorough "curettment" of the socket is carried out. All devitalised teeth are removed whether the X rays show infection or not. Tonsils are next dealt with, for in 85 per cent. of toxic psychoses the tonsils were found to be infected. Stomach contents are examined bacteriologically and autogenous vaccines prepared and administered. The rest of the intestinal tract is then examined and treated according to the bacteriological, X ray, and surgical findings. The accessory sinuses of the upper respiratory tract and the genital organs are also thoroughly explored and treated. Besides the improvement in recovery rates, it has been found that treatment such as this has reduced the average length of residence of patients from ten months to three months. The author shows a touch of scorn in such mention as he makes of psychotherapy. He holds that it is unwise to emphasise the mental symptoms to the patient. If the mental symptoms are accentuated the patient will often become suspicious and lose confidence in the physician, whereas if the physical causes are explained, and he is told why he has such peculiar symptoms, he will welcome advice and treatment. The author holds that the extreme to which psychotherapy is occasionally carried in some institutions is not justified by the results. After several years devoted to psycho-analysis and psycho-therapy, he has failed to observe any benefit to the patients, and has now discarded this form of treatment. He adds "More in truth than in jest, may it be said, that psycho-analysis will in time be superseded by gastric analysis. . . ."

So vast seem the hopes generated by both physico- and psycho-therapists in these days, that the optimist may expect the lunacy problem shortly to solve itself by the entirely satisfactory treatment of all patients. In the meanwhile this work will at least serve to encourage the vaccine therapist and the surgeon.

JOURNALS.

BRAIN. Vol. XLIV., Part IV.—The Field Defects Produced by Temporal Lobe Lesions: Harvey Cushing. This is an analysis of the perimetric findings in a series of 59 verified temporal lobe tumours. Twenty-three had to be excluded owing to the degree of blindness; of the remaining 39 no less than 33 showed homonymous field defects, indicating involvement of the temporal loop of the optic radiation. Thus a visual field defect appears as the most constant feature in this series of temporo-sphenoidal tumours; the so-called "uncinate fits," which have been regarded as characteristic of lesions in this region, occurred in only 24 cases.—Reflex Movements and Postural Reactions in Quadriplegia and Hemiplegia with especial reference to those of the Upper Limb: George Riddoch and E. Farquhar Buzzard. In many cases of quadriplegia and hemiplegia reflex movements of the upper limbs can be elicited analogous to those which are known to be present in the lower limbs in cases of paraplegia. In all but one of the cases of hemiplegia a flexion reflex of the upper limb was obtained. In all the cases of quadriplegia and in one case of hemiplegia an extension reflex of the upper limb was obtained. In two cases of quadriplegia it was possible, in addition, to evoke a flexion reflex. The spasticity of patients with quadriplegia in extension and hemiplegia presents close analogies with that of the decerebrate anthropoids described by Sherrington. The so-called "associated movements" are postural reactions; they were found in all the cases accompanying strong reflex and voluntary movements.—Dyssynergia Cerebellaris Myoclonica—Primary Atrophy of the Dentate System: J. Ramsay Hunt. This is a form of cerebellar atrophy, involving the efferent dentate system, which occurs sometimes in combination with Friedreich's disease. The main characteristic is an early appearance of appendicular asynergia and cerebellar tremor. The disease may be looked upon as the cerebellar equivalent of primary paralysis agitans, affecting the dentate nucleus as the latter affects the pallidal system of the corpus striatum.—On Disorders of Movement Resulting from Loss of Postural Tone, with special reference to Cerebellar Ataxy: F. M. R. Walshe. After a discussion of the reactions of the atonic muscle and the cerebellar symptom-complex the author considers that the latter is but a various manifestation of loss of postural tone, that is to say, the loss of one of the two essential elements in motor coördination. And he suggests that the cerebellum is the organ through which the cerebral motor cortex influences postural activities and regulates posture in the interests of coördinated purposive movement.

BRITISH JOURNAL OF EXPERIMENTAL PATHOLOGY. The April issue contains the following papers:—J. Segal: The Association of the Virus of Typhus Fever with the Various Blood Elements. (1) Leucocytes obtained from peritoneal exudates of typhus-infected guinea-pigs do not carry the virus; (2) the virus seems to be intimately connected with the platelets; (3) by the separation of these cells from a large quantity of blood a high concentration of virus can be realised for experimental purposes.—A.W. Bacot (the late): On the Technique adopted in following Weigl's Plan of Feeding Lice Infected with the Virus of Typhus Fever by Rectal Injection.—J. B. Orr and I. Innes: The Effect on Arterial Hypertension of Increased Fluid Intake. The paper describes an investigation into the influence of increased water ingestion on the blood pressure of some apparently normal subjects and also of pathological cases with high arterial tension. The addition of two to three litres of water to the normal daily consumption is followed by a distinct fall in both systolic and diastolic pressure. The fall is not accompanied by an increase of either the rate or force of the heart beat, and the decreased pressure is maintained for some time after the extra water has been excreted. Reasons are put forward in support of the suggestion that the chief factor in producing the fall of pressure is the elimination of pressor substances that cause arterial constriction and thereby produce an unnecessarily augmented arterial tension. When diuresis is unable to keep pace with the intake of water, especially in cases of high arterial tension, the fall in pressure is sometimes preceded by a rise beyond the original level which persists until the bulk of the extra fluid has been eliminated.—W. E. Gye and W. J. Purdy: The Poisonous Properties of Colloidal Silica: 1. The Effects of the Parenteral Administration of Large Doses. II. The Effects of Repeated Intravenous Injections on Rabbits: Fibrosis of the Liver (see annotation, p. 950).—N. Morris: Anoxæmia and the Increased Electrical Excitability of the Neuro-Myone. 1. An increase in the electric excitability (E.E.) occurs independently of change in the alkaline reserve. 2. Any experimental method whereby an anoxæmia is produced (a diminution of alkalis, cyanides, histamine or asphyxia) causes an increase in the E.E. Acids lower the E.E. 3. Any increase in the E.E. is accompanied by a diminished supply of oxygen to the tissues. 4. It is therefore concluded that anoxæmia is the essential condition underlying an increased E.E. of the neuro-myone.

THE LANCET.

LONDON: SATURDAY, MAY 13, 1922.

School Buildings and Public Money.

A FEW weeks ago the Education Committee of the London County Council published a report on the extent to which medical inspection of school-children was carried out under the Council system during the year 1921. The figures showed that nearly 300,000 children were examined in detail at the elementary schools, of whom 38·6 per cent. were noted as requiring treatment for one or more defects. It is not the intention just now to dwell upon the physical standards of the school age population in the metropolis or the country at large, but the existence among us of a heavy percentage of children presenting some more or less important falling away from the normal should be remembered as forming a strong argument for improvement in school buildings—the class-rooms, the public offices, and the playgrounds. It stands to reason that children who suffer from any physical defect will be particularly pressed upon by unsatisfactory surroundings. That a badly lighted class-room may lead to eye trouble is certain, but it is equally certain that, if the eye trouble already exists, it will be rendered more serious in the same way; and, speaking generally, the normal and tough subject will come through ordeals which will be harmful or even disastrous to less sturdy specimens of young humanity.

In the House of Commons these matters came under discussion when the House went into Committee on a vote for the salaries and expenses of the Board of Education and the various establishments connected therewith. Mr. FISHER, the President, pointed out that within the limit in respect of elementary education—some 62 millions sterling—there were certainly interior limitations, one of which, namely, £3,400,000, included the School Medical Service, and a limit of £300,000 for the provision of meals to school-children, but in 1921 and 1922 the provision of meals had cost the country over one million. The Government, he said, would not curtail any expenditure which might be necessary to preserve the child population in bodily health, but he protested against the education vote being at this vast cost for meals, and suggested that a system of inspection outside the department ought to give valuable help towards saving money in this direction. The double source of the children seeking meals was in his mind, as presenting difficulties which are not generally realised. One class, the smaller, of these children is certified by the school doctor as requiring meals; the other, and far the larger, receives meals under the plea of poverty. The latter children are under no system of inspection, and Mr. FISHER'S argument is that the cost of their meals, rising and falling as it does with unemployment, ought not to be regarded as a responsibility upon his Board. With regard to the real work of the School Medical Service, he mentioned that 2,500,000 children were inspected yearly, showing that the quoted figures of the Education Committee of the London County Council account for about 12 per cent. of the total; and he was able to report that throughout the country not only had there been a general and great improvement in the cleanliness of school-children, but dental and ocular defects have been progressively ameliorated, while "hundreds of thousands of children had had their physique and powers of resisting disease improved." Mr. FISHER'S whole speech showed that the Board of Education is really anxious to be economical, but cannot find any alterations, which might be prejudicial to the improvement of the health of the children, to constitute any policy of economy. He did not, however, escape criticism. Dr. ADDISON considered that undesirable economy, which would be in the end a waste of money as well as of lives, was already in contemplation by the Board of Education, inasmuch as the cutting down by 20 per cent. of the grants for the School Medical Service would affect not only special centres for defective children and organisation of physical training and play centres, but would reduce the provision for meals. Mr. HERBERT LEWIS, Parliamentary Secretary to the Board of Education, declared with reference to the last point that apprehension about the feeding of the children was without foundation, as not a single child would go hungry through any of the necessary innovations. If this be so there must be a good deal of laxity and extravagance characterising the existing arrangements, and Mr. FISHER'S plea for further inspection is very reasonable.

Major GRAY during the debate called attention to the insanitary condition of some of the State schools in terms which have been employed on previous occasions in these columns and elsewhere. It is the unfortunate truth that many of these buildings are not suitable for their purpose, and the country is face to face with the fact that there will have to be sooner or later—and the sooner the better—considerable expenditure of money in this direction. The position is not a new one; even before the war many complaints of school buildings had appeared in the public press, and many teachers knew that they were justifiable. We hesitate, in the present plight of national resources, to lay stress on the absence of this or that feature of lighting, ventilation, or furnishing of the premises of the schools, but, cost what it will, the standards of sanitary decency and cleanliness ought to be most rigidly maintained—and in some schools this is now not possible. Two things will be served by the structural improvement of the bad buildings and the proper provision of sanitary facilities: the cause of health among the children, and the cause of education in the best sense—the education of how to be a decent citizen. Therefore action is needed, but a full reformation cannot be accomplished immediately. The premises of 22,000 schools, with their class-rooms, offices, lavatories, and playgrounds, cannot be all, and all at once, brought to a high level. The magnitude of the task dictates the only possible policy—namely, an immediate dealing with the worst features and continuous effort in the future.

The Removal of the Gall-bladder.

THE gall-bladder when it contains stones appears to serve no useful purpose in the bodily economy and can be removed by the skilful operator without detriment. So much is common ground among surgeons to-day. What may be the normal function of the gall-bladder, and what is the reason for stones forming in it, are still matters on which opinion differs. And it was appropriate for their discussion to take place at Leeds where, more than at any other surgical school, the liver and its adnexa have been explored and investigated. The Association of Surgeons of Great Britain and Ireland, meeting in full session last week at Leeds,

devoted a whole morning to considering these problems, and with a frankness due no doubt in part to the fact that the proceedings of the Association remain unreported.

Gall-stones may be regarded as an advanced stage in a malady of which the early symptoms are apt to be overlooked. Dead men tell no tales, and there is often no clinical history whatever of hepatic disturbance in the notes of patients whose stones are discovered at the routine examination of the gall-bladder in the dead-house. Sir BERKELEY MOYNIHAN, however, represents the view that evidence of previous dyspepsia may always be elicited when, in the course of laparotomy for some other abdominal disease, stones are felt by the surgeon in the living patient's gall-bladder. And his conviction should lead to greater care in examining dyspeptics of middle-age with a view to cholecystitis in its early stages. Future progress probably depends much upon defining clearly this early clinical picture. We want to know what is the exact composition and consistency of the bile, what is the bacteriology of the bile and of the bladder walls, what are the histological changes in these walls, before the picture can become precise and useful. It is known how long a time a cystic infection like typhoid can remain latent, how various forms of bacteria can retain for years their virulence when encased, like flies in amber, within the structure of a gall-stone. While the single cholesterin stone is an exception to the rule that stones are only formed in infected bladders, it may be the exception that proves the general rule.

As gall-stone disease advances, treatment becomes at the same time more urgent and more difficult to carry out. Mere drainage of the gall-bladder can never remove infection which has become firmly established in its walls, and in at least 25 per cent. of cases cholecystitis is followed by pancreatitis, presumably as a result of lymphatic infection. The thickened and adherent gall-bladder is increasingly difficult to excise the longer it is left. Cholecystectomy then becomes the more perilous the more necessary its performance. Statistics may have their place, but comparisons can hardly be valid when made between the successful figures of those who excise the bladder in all except desperate cases and those who simply open the bladder when its excision is likely to present difficulties. The operation is one that should never be lightly undertaken, for on the one hand the common bile-duct may be damaged or included in a ligature in spite of scrupulous care, and on the other hand the cystic artery is capricious in its origin and course.

The Case of Ronald True.

RONALD TRUE, whose name for some time has been prominent before the public in connexion with the death of a girl named GERTRUDE YATES, has been found guilty of murdering her and has been sentenced to death. It is hardly necessary to recapitulate the facts of the case, or even the evidence of the medical witnesses who were practically unanimous as to TRUE suffering in a considerable degree from mental derangement. The important aspect of the trial from a medical point of view will be found in the directions as to the law with regard to the criminal responsibility of insane persons laid down by Mr. Justice MCCARDIE, in his acknowledged departure from the well-known and much criticised "rule in McNaughton's case," and in his expression of opinion that it is "extremely desirable that the House of Lords should determine the tests to be applied at the present day."

In 1843, after DANIEL MCNAUGHTON had shot Sir ROBERT PEEL'S secretary, Mr. DRUMMOND, who had died of his wounds, and after MCNAUGHTON had been acquitted as insane, the judges were asked to formulate answers before the House of Lords as to the law relating to insanity. Among other points dealt with the judges then advised that "To establish a defence on the ground of insanity it must clearly be proved that at the time of the committing of the act the party was labouring under such a defect of reason from disease of the mind as not to know the nature and quality of the act he was doing, or, if he did know it, that he did not know that he was doing what was wrong." Mr. Justice MCCARDIE, when summing up, said to the jury as to this, "I myself feel that the rules that were stated in 1843 are not clear and are not exhaustive. . . . . The law, as I shall put it to you, is in some ways in advance of the law as it was stated in the McNaughton case." He believed, however, that his statement of it would represent views already often expressed by the Court of Criminal Appeal and by individual judges. Be this as it may, following upon questions which he asked the jury to answer arising strictly out of the McNaughton rule quoted above, he further directed them that, even if the prisoner knew the physical nature of the act, and that it was morally wrong and punishable by law, and yet was by mental disease deprived of the power to control his actions, then, in his view, the verdict should be "guilty but insane." His Lordship also pointed out to the jury that in the case of a verdict of wilful murder the Home Secretary might yet advise HIS MAJESTY to exercise his prerogative of mercy; and it is to be remembered that the Court of Criminal Appeal has power to find that a prisoner convicted of doing a criminal act was insane when he did it, with the same result as if that had been the original verdict.

In those circumstances it seems possible that the Court of Criminal Appeal may be asked for a pronouncement upon the rule in McNaughton's case, and that ultimately the House of Lords may think it desirable once more to apply itself to this question. Lord BIRKENHEAD'S energy and insight as a legal reformer are well known, and other cases of crime than that of TRUE which have occurred in the past few months emphasise the need for reconsideration of the standard of irresponsibility laid down eighty years ago. At any rate the defence in TRUE'S case, which failed to convince the jury, did not rest upon any contention that he did not know the nature and quality of his act, or that he was doing wrong, but, in his advocate's words, upon his having, "owing to his disease of mind lost his power of controlling his actions." With this view of the defence of insanity, Mr. Justice MCCARDIE by his summing up expressed his concurrence. In doing this he appears to have gone further and in more definite terms than any other judge towards a reform of the law long advocated by many members of the medical profession.

Mental Hygiene.

THE announcement was made recently in THE LANCET that a provisional committee of medical men, with Sir COURTAULD THOMSON as chairman, had decided to form a central organisation for a National Council of Mental Hygiene, in order that the work of the various societies and associations engaged in promoting the study of mental disorders could be expanded and organised. The first meeting of the

Council was held in the Barnes Hall of the Royal Society of Medicine on Thursday, May 4th, when the proceedings were full of promise. Sir COURTAULD THOMSON, who presided, pointed out what such a national body as was projected might do in making mental hygiene a more prominent subject both in the mind of the public and in the education of medical men and students, saying that similar councils already existed in America, Canada, and France. A new British Council would, he said, be able to meet these three national leagues for discussion, when knowledge might be pooled, and measures of world-wide significance be concerted.

Sir HUMPHRY ROLLESTON explained in more detail the aims of the Council, which, he said, were: The correlation of the associations concerned with mental hygiene, and British entrance into an international league; the study of the causation and prevention of mental disturbances, especially as influenced by environment, heredity, industrial risks, and infectious diseases; the inclusion of the subject of mental hygiene in the medical curriculum, and the establishment of special clinics for early mental disorders in general hospitals; the importance of early treatment; and the issue of judicious propaganda. The personnel of the provisional committee was then submitted to the meeting, the names being those already published in THE LANCET of April 1st. The names were unanimously approved, and the provisional body was given authorisation to act for six months, to add to their number, to draw up a constitution, and to elect an executive. An interesting and quite serious though humorous speech from Dr. HENRY HEAD laid stress upon the view, still a little modern, that no structural disease can be free from its mental concomitants, and that every mental state has its bodily equivalent. Mental hygiene, he pointed out, was as important in daily life as sanitation, while the earliest manifestations of structural disease were mental in character, mind and body being inextricably intermingled. Sir LESLIE SCOTT, M.P., insisted on the necessity that those who had to administer justice should have expert advisers as to the mental defects of those to whom crimes were imputed. Sir JOHN GOODWIN, Director-General of the Army Medical Service, warned the audience that the massive strain placed by the war upon the fighting men and the country in general was not yet relieved, making mental hygiene a subject of the first import to the nation; while Sir MAURICE CRAIG summed up the therapeutic side of our treatment of insanity by showing that, such was our national absence of preventive measures in respect of mental disease, nothing was done for an afflicted subject until he or she had reached a stage in which there was little indeed that could be done.

The National Council of Mental Hygiene has started under the best auspices with a fine practical programme before it, and it is to be hoped that the provisional committee will be able to take advantage of the opportunities for international activity which lie immediately before them. A Congress of Mental Hygiene will be held in Paris on the first four days of June, under the patronage of the President of the Republic, with the object of preparing the way to participation in an international meeting which is projected in New York. An invitation has been issued to doctors, biologists, schoolmasters, military and legal officers, and sociologists to participate in the French Congress, whose programme includes a section for "international entente in view of scientific researches dealing with mental hygiene." Full information on the meeting can be obtained from Mr. GENIL PERRIN, 99, Avenue de la Bourdonnais, Paris.

Annotations.

"Ne quid nimis."

THE YEAR IN THE UNIVERSITY OF LONDON.

THOSE who undertake the development and control of a modern university in a great city assume a task almost comparable with the cultivation of the tree of knowledge itself. Symmetry must be preserved, without ruthless pruning of the more vigorous branches, lest the tree may suffer, by the protection and encouragement of the young shoots emerging on branches in less favourable situations. How wisely these principles have been applied by the governing body of the University of London, and how carefully the balance between the faculties has been preserved, is evident from the report by Sir Cooper Perry, as Principal Officer, on the work of the year 1921–22. It would be unseemly to single out the features of special interest in connexion with the medical schools without at least noting the general progress of the University. The total admissions by all channels reached 7092, compared with 6728 in 1920–21, and 3852 in 1913–14. The total number of candidates for all examinations was 27,237. From the fact that of these only 9481 were successful, many interesting speculations may arise; we are content to suggest that it indicates that a high standard is being maintained. The relative increase of internal over external students is a sign that the educative value of a corporate university life is being more and more appreciated. In 1913–14, of 1807 candidates for degrees, 900—less than half—were internal students; in 1920–21, of 1746 candidates 1036 were internal, while in 1921–22 there were 1543 internal candidates in a total of 2455. So much for general progress. In the Faculty of Medicine, with which we are chiefly concerned, Sir Cooper Perry recalls the establishment during the year under review of five new chairs, tenable at the following medical schools: University College Hospital, St. Thomas's, Middlesex, and St. Mary's (two). The subjects in which these new professors have been appointed are bacteriology, chemistry (two), medicine, and surgery, and the incumbents are respectively Dr. H. R. Dean, Dr. R. H. A. Plimmer, Dr. W. B. Tuck, Dr. F. S. Langmead, and Mr. C. A. Pannett. The Chair of Physiology at St. Bartholomew's Hospital Medical School, rendered vacant through the death of Prof. Bainbridge, has, as we have already announced, been filled by the appointment of Dr. C. Lovatt Evans.

The international relations of the University have not been overlooked. Arrangements for the exchange of lecturers attached to the Faculty of Medicine in the universities of Paris, Utrecht, Leiden, Groningen, and Amsterdam on the one hand, and London on the other, have been fruitful, as we note in another column. The provision of adequate post-graduate facilities in London for medical men is receiving consideration. There appears to be some prospect of the establishment in the near future, in close association with the university, of a medical school attached to a centrally situated hospital, which shall be devoted solely to post-graduate medical education. The proposed Institute of State Medicine, for instruction in Public Health, Forensic Medicine, Industrial Medicine, and Medical Ethics and Economics, which will be financed by the Rockefeller Foundation, is also receiving the cordial support of the Senate. The statutory institution of a Bachelorship in Dental Surgery is a sign that this important branch of surgery is at last receiving adequate recognition in academic circles.

The confidence of the Government in the value of the work being done is manifested by the increase from £8000 in 1920–21 to £16,000 in 1921–22 of the Treasury grant to the University itself, and by large increases to certain of its constituent schools. These additions to former grants are the more appreciated

in view of the serious condition of the national exchequer. Some anxiety is expressed in this regard as to the future, but inasmuch as even in a difficult year the needs of the University have been further recognised, we may trust, with Sir Cooper Perry, that it will never be found necessary to effect reductions in respect of "this most remunerative of the national industries."

A FURTHER AID TO DIFFERENTIAL DIAGNOSIS.

THE value of the variation in the blood count and blood picture as a means of differential diagnosis in many diseases has long been well known, and it is also well known that it is valueless in the diagnosis of many other conditions. Löhr[1] brings forward another property of the red blood corpuscles, the variation in which gives us a means of assistance in those cases where the blood count is not of material help. His method is as follows. The blood from the patient is collected from a vein, by means of a 1-c.cm. syringe, containing a 5 per cent. solution of sodium citrate, blood and citrate being in the proportion of 4:1. The fluids are thoroughly mixed, and then injected into a glass tube 6·5 cm. high, of a diameter of 5 mm., and holding exactly 1 c.cm. The tube is marked from the top downwards at intervals of 6, 12, 18, 24 mm. The rate at which the red corpuscles sink is now observed, the time they take to arrive at the fourth mark being that which Löhr uses for purposes of comparison. It is important that all observers working on any new experiment such as this should use the same technique, so that the results may be compared.[2] Löhr finds that the normal time taken by the corpuscles to sink, called by him B.S. (Blutsenkung) in the newly born up to the fifteenth week is 1500 minutes. From that age onwards the time diminishes until for a healthy man it reaches 1200 to 1400 minutes, and for a woman 800 to 1000 minutes. After the menopause the woman's B.S. rises to that of a man's, while during menstruation it diminishes to 600 minutes. No daily variation, or variation following meals or injection of such substances as adrenalin, pilocarpine, and physostigmine has been found. The following diseases were found to have a normal B.S.: Goitre, with or without signs of hyperthyroidism, 25[3]; acromegaly, 1; chondrodystrophia, 1; diverticulum of the œsophagus, 1; cardiospasm, 3; early and late rickets, with their complications of scoliosis, coxa vara, genu varum and valgum, 30; osteochondritis of the elbow, knee, and ankle, 30; cartilaginous exostosis, 1; old slipped internal semilunar cartilage, 4. In the following conditions a marked decrease in the B.S. was found: All inflammatory conditions, acute or chronic, in direct proportion to the magnitude of the inflammatory process—e.g., in pneumonia and in diffuse peritonitis the B.S. descended to 15–50 minutes (the normal in these cases being about 1500 minutes). The magnitude of a pulmonary or bone tuberculous lesion could also be accurately gauged, and it is remarkable that a symptomless chronic rheumatic arthritis also showed a marked decrease (3 cases). Chronic ulcers of the skin or gastro-duodenal region showed no change in the B.S., but if a fresh inflammatory process, such as perigastritis developed, a diminution in the B.S. immediately indicated it. Similar changes in the B.S. were observed in cases suffering from malignant tumours. The larger the tumour and the more extensive the metastases, the lower the B.S. and vice versa. Out of 100 cases 2 gave an increased B.S. Innocent tumours showed a normal B.S. 100 uncomplicated fractures showed a diminished B.S. occurring at the earliest 12 hours after the accident, and always within 24 hours, lasting until the fracture was consolidated. Here also the magnitude of the fracture was indicated by the B.S., a fracture of the femur lowering it a great deal more than one of the toe. In 50 cases of primary healing in wounds in healthy individuals, a lowering of the B.S. occurred within 24 hours, and lasted six to ten days. In severe anaphylactic shock the B.S. was raised, but after disappearance of the shock, it sank to a minimum, and only slowly regained the normal in about six days. Epilepsy (2) showed an increased B.S. during the fit.

As a result of about 1000 examinations, Löhr arrives at the conclusion that the estimation of the sinking time of red corpuscles is of value in surgical practice, particularly in the following conditions: (*a*) In abdominal surgery to decide the magnitude of an inflammatory process, especially in appendicitis, for during a quiescent period the B.S. is normal; (*b*) in diseases of the joints to distinguish tuberculous and suppurative osteomyelitis from osteochondritis and Perthé's disease, rickets (coxa vara, &c.), old fractures, and flat-foot, and in estimating the advisability of mobilisation of a tuberculous joint which is thought to be healed; (*c*) in distinguishing carcinoma of the œsophagus from cardiospasm and diverticulum; and (*d*) to distinguish any form of inflammation, even though latent, from a non-inflammatory process.

[1] Deutsche medizinische Wochenschrift, March 24th, 1922.

[2] Further details of the technique may be found in Löhr's article in the Grenzgebiete der Medizin und Chirurgie, Band xxxiv., Heft 2, 1921.

[3] The numbers indicate the number of cases examined.

VOCATIONAL TRAINING IN CONNEXION WITH SANATORIUMS.

THE concurrent treatment and vocational training of ex-Service men suffering from tuberculosis has been the subject of consultation between the Ministry of Health, the Treasury, and the Ministry of Pensions, and a circular has been issued for the information of county and county borough and metropolitan councils and their tuberculosis officers. Arrangements have been made for training in market-gardening, poultry-, pig- and bee-keeping; in rural carpentry, furniture and house repairing; in tin-smithing, art-metal work, brush and basket making; in jewelry, watch, clock, and china repairing at various specified sanatoriums where training sections have been provided at Government expense. These courses have been designed to give men desiring to work on their own account in suburbs, country towns, or large villages a general training which should enable them to earn a living, though it is not anticipated that the training given will make men commercially successful at once. Patients recommended for a course of vocational training, even for the less heavy occupations, should be capable of doing at least four hours work daily without ill-effect, and since, even with the aid of war pensions, it will be difficult for patients to make good in competition with healthy workers, it is important that only those who have a reasonable prospect of securing arrest of the disease should be selected for admission. Payment will not be made for work done during training, but under certain conditions a bonus and a grant for tools will be obtainable at the end of the course. The procedure to be adopted by applicant and the tuberculosis officer is detailed in the circular: the provisions made to ensure that no money is wasted in training obviously unsuitable candidates and, on the other hand, that a temporary set-back or a mistake in selection of a special vocation shall not prejudice a man's chance of receiving training, appear to be well considered. In no case may a course of vocational training exceed 12 months in duration; no patient will be admitted to training whose course cannot be completed by June 30th, 1924.

EXPERIMENTAL ADMINISTRATION OF COLLOIDAL SILICA.

THE April number of the *British Journal of Experimental Pathology* contains two interesting papers by W. E. Gye and W. J. Purdy on the Poisonous Properties of Colloidal Silica. The first paper deals with the results which follow the subcutaneous, intraperitoneal, and intravenous injection of large doses of colloidal silica, "orthosilicic acid," into mice and rabbits and guinea-pigs. Subcutaneous injections are followed by

severe local reactions, while intraperitoneally it is fatal though the cause of death is not quite clear. The most interesting observations, however, relate to the intravenous injection of the poison. In large doses it causes death within a few minutes, due, apparently, to intravascular thrombosis. After sublethal doses the coagulation time of the shed blood is much accelerated, though in vitro silica has no influence on the rate of clotting. Daily injections of sublethal doses causes death of the animal in three or four days, with degeneration of the liver and kidneys and of vascular endothelium. The second paper describes the effects following the administration over long periods of small doses of silica varying from 1/20th to 1/3rd of the lethal dose. The injections were made intravenously, and the smaller doses were given daily, the larger once a week. Animals treated in this way for several weeks show, when killed, a considerable degree of fibrosis of the liver and a slighter fibrosis of the kidney and spleen. It is not quite clear how these lesions are brought about. The admirable illustrations which accompany the paper rather indicate that the process consists in a primary proliferation of the supporting connective tissue of the liver, though the authors appear to regard it as a process of repair following injury to the liver cells. Possibly further work will clear this point up, and it is one of obvious importance. The chronic fibroses which are so common in human pathology are obscure and difficult to explain. Since it is no longer possible to lay the blame for the hobnail liver on alcohol, we are hard put to it to account for this common lesion, and it is quite certain that the last word has not yet been written on chronic interstitial nephritis. The chronic insidious diseases are the really difficult ones to understand, and there can be no doubt that this work marks an important step forward in our knowledge of visceral sclerosis. It is a promising field for research which should yield valuable results.

THE GAZOTHERM.

A LUNCHEON was held at the Hôtel Métropole on May 3rd, the guests being invited to meet Dr. Guebel, of the Paris Dental School, who desired to demonstrate a new dental apparatus, the Gazotherm. This apparatus was invented by Dr. Fabret, of Nice, who claims for it that by its use filling operations on the teeth can be carried out painlessly. The essential feature of the device is that a stream of oxygen is directed on to the tooth to be filled. The temperature of the oxygen is lowered by passing it through a chamber connected with a cylinder of compressed carbon dioxide which is gradually turned on. The intense cold produced freezes the pulp so that the tooth becomes insensitive. This stage is determined by noting the appearance of a film of frost on the enamel. The apparatus is complicated and inconveniently large, though apparently easy to manage. We understand that the cost is about £100, so that its use among dentists is likely to be limited, at any rate, until its practical utility has been more conclusively demonstrated.

Dr. Guebel stated that the process was quite harmless, and that death of the pulp never resulted; indeed, he went further, and said that only the protoplasmic and nervous filaments which extend from the pulp into the dentine were frozen, and that the pulp itself was unaffected. It would be interesting to know the evidence for this, since it must be extremely difficult to ascertain the exact limits of the freezing process. It was admitted that the stream of oxygen must never be allowed to impinge on the soft tissues, for it is obvious that, if the gum were frozen, the risk of gangrene would be considerable. This would seem to limit the use of the method to the front teeth. Even so, the current of gas being under pressure must send out a spray, and it seems to us that it must be difficult, if not impossible, to prevent the gum margin from being affected in some cases. These precautionary statements are necessary in dealing with a new method, even though it may present promising possibilities; it is unlikely, however, that it could ever meet the claims made for it in a brochure which the promoters of the demonstration provided for their guests—most of whom, by the way, seemed to be laymen. It is only fair to Dr. Guebel to say that his name did not appear as the author of the pamphlet in question. The scope and limitations of this invention have yet to be learned in this country, but we hope that dentists who have the opportunity will investigate it carefully under scientific conditions and make known their results to their colleagues in the proper way—namely, by communication to a dental society, when instructed debate upon its merits can appear in professional journals. A device which can only be used in a professional consulting room or clinic and by a professional dentist should be introduced professionally. Demonstrations have been made, we understand, by certain firms to particular dentists; a commonplace of commercial procedure, but not providing the expert criticism that is required.

INSTITUTIONAL CATERING.

ANYONE who is evolving for himself a system of institutional management will get great help from the Standing Orders of the R.A.M.C. (Harrisons, St. Martin's-lane, London, W.C., 1s.) to which Miss Muncaster referred in her address on Institutional Feeding, published in THE LANCET of April 22nd. Being a collection of Government regulations, it is not exactly a training manual, but nevertheless, nearly everything is provided for, the salient idea being that no mistake shall occur, and no loss fall upon the taxpayer except through a neglect of some specific regulation, for which the offender can be definitely charged, convicted, and punished. We all know a cook should send dinners up hot, but here it is laid down as his duty, and if he fails he has committed a service crime. Thus the quartermaster's duties in regard to provisions are stated at length. He demands them in accordance with scale and requisitions; by his steward he receives and inspects them, acknowledging their receipt in correct quantity and quality, unless on the receipt he states to the contrary; he watches the amounts in store, sees he is ready for any probable demands, but permits no undue accumulation, and issues first the articles longest in store. He is responsible that the weights and measures used are accurate. He keeps the ration account, the dripping book, and the fuel and light account, and trains N.C.O.'s to keep them too. The cook draws his stores from the steward, certifying they are fit for use. Having cooked the food he is to send it up hot, and after dinner he has the kitchen cleaned, the tables scrubbed daily, the floor at least twice a week, the walls brushed down, and the windows cleaned once a week. Metal cooking-pots are washed out with hot water and soda after use, are cleaned, emptied, and carefully dried every night; no pans are to boil dry; range flues are to be cleaned daily, and ovens washed out occasionally. Everything is provided for, and any manager constructing his own plan of institutional catering will find the book a real help.

STUDIES IN VACCINIA.

THE paper published by Dr. Myer Coplans in the April number of the *Journal of Pathology and Bacteriology*—being certain collected studies in connexion with the Beit Fellowship on the subject of vaccinia—is of special interest in view of the risk of epidemic small-pox in Great Britain since the practice of protective vaccination has been allowed to fall into desuetude. In a recent pamphlet issued by the Research Defence Society it was estimated that of the population of the United Kingdom over 15 millions require to be vaccinated or revaccinated to meet this risk. It has been the policy of the Government to maintain at their Lymph Institute at Hendon a reserve supply

of 2 million doses of calf lymph in cold storage. In addition, it may be assumed that private lymph manufacturers in Great Britain also hold reserve stocks amounting in all, perhaps, to as much as half a million doses. Thus the total available emergency supply in the country amounts to 2½ million doses.

The question of the quality of the lymph is of outstanding importance. Lymph, as prepared by the ordinary process of emulsification with glycerine and water, and necessarily stored for several months—so-called "mature" lymph—may at length be rendered free from pathogenetic organisms; it is never entirely bacteria-free. In the event of sudden epidemic requirements, it may be taken as reasonably certain that all available "matured" stocks will rapidly become exhausted, and, as has occurred on previous occasions, immature stocks, rapidly prepared, containing pathogenetic organisms, will be placed upon the market. Hitherto there has been no Government control to prevent this. In time of panic the risk of contracting a septic complication in vaccination is always considered preferable to an attack by small-pox. In his paper Dr. Coplans gives a simple method whereby bacteria-free calf lymph is prepared within 15 days or even less. The essential special selective bactericidal substance added to the phenol-glycerine lymph emulsion is a triphenyl-carbinal dyestuff—e.g., malachite green or brilliant green—which, upon the termination of its intense bactericidal activity, is converted into the comparatively innocuous leuco-compound by reduction, this process resulting in the immediate restoration of the original colour of the lymph. Tests carried out showed that the longevity of the lymph prepared in this manner could be relied upon for 18 months, storage in the meantime taking place at 7° C., while the use of a refrigerator was avoided. The conversion of the dyestuff which is toxic, bactericidal, and in high concentration, vaccinicidal, into its comparatively innocuous form—viz., the leuco-compound, is an important development in laboratory technique as applied to biological problems. It is an aphorism amongst lymph manufacturers that the younger the lymph the more potent the vaccine. A by no means inconsiderable proportion of the epidemic reserve stocks are never used; with the passing of time their potency diminishes and ultimately they become discarded. The cost of storage, supervision, and constant re-testing is also high. All these items being properly taken into account the cost of production of calf lymph has been necessarily high, but by the method described, in accordance with which Dr. Coplans has prepared over 600,000 doses of the material, lymph of a much higher standard of purity as regards bacterial content is prepared within a few days, as actually required, and there is necessarily a great saving of cost, amounting in some cases to as much as 90 per cent. We therefore consider that this newer time-saving method of preparation must rapidly oust the costlier methods hitherto in vogue, and doubtless the Public Health Committee of the League of Nations, with its enormous task of small-pox control in Eastern Europe, will welcome any hope of lessening the financial burden in their present straitened circumstances.

It seems pertinent to recall, at this stage, that at the present time any person may make or offer for sale within the United Kingdom calf lymph vaccine, whatever its origin or quality, without qualification, let or hindrance. No statutory control is exercised, nor are the provisions of the Sale of Food and Drugs Act made to apply. Nowhere is it authoritatively laid down as to what constitutes calf lymph either as regards purity or freedom from bacterial contamination or as to potency. The Pharmacopœial Committee of the General Medical Council could render service here by recognising calf lymph vaccine as coming within the range of recognised materia medica. Further, the origin of the seed stock used for the purpose of making calf lymph is important. Before 1900 Parliament ordered the destruction of all seed stock of variolous origin at their Hendon establishment, but left private manufacturers to their own devices. Seeing that all laboratories, both English and continental, habitually interchange "seed stocks"—all of them of variolous origin—it is difficult to understand how far Parliament was obeyed. Later it became the practice at Hendon to revive fast-fading vaccine lymphs by interpolation of the rabbit, and rabbit-pox replaced the "vaccine seed of variolous origin." Abroad, in place of the rabbit, the ass or the mule is employed, and the resulting ass-pox, or mule-pox is used as the exalted seed stock for the vaccination of calves. Such lymph is freely admitted to the United Kingdom for the purpose of sale, and no practitioner knows whether the lymph he employs is derived from small-pox, rabbit-pox, ass-pox or mule-pox. We therefore consider that the time is ripe for the Government to lay down some regulations upon this matter for the protection of the public. The preparation of bacteria-free and fully potent vaccine lymph has enabled Dr. Coplans to carry out certain immunising experiments upon the rabbit which, it is found, can tolerate the repeated injection, given intraperitoneally, of massive doses, each sufficient for the vaccination of 500 children, with the result that a high degree of immunity is established. The writer lays down a standard vaccine unit and doubtless will, at a later date, furnish details of the exact degree of immunisation produced. We shall look forward with interest to his report on the fate of the leuco-compounds in the animal body.

CONGENITAL STEATORRHŒA AND PORPHYRINURIA.

THERE are certain individuals who are abnormal from birth, in that they exhibit some deviations from the normal course of metabolism—functional analogues of structural malformations. Such anomalies were described by Sir Archibald Garrod in a lecture entitled More Inborn Errors of Metabolism, delivered at the Institute of Pathology and Research of St. Mary's Hospital on May 4th. He referred briefly to four such anomalies, albinism, alcaptonuria, cystinuria, and pentosuria, which had been discussed in his Croonian lectures in 1908.[1] These anomalies are all very rare, occur about twice as often in males as in females, and are apt to affect several collaterals in a family. Two other errors may now be added to the list—viz., congenital steatorrhœa and congenital porphyrinuria, which are no less rare, and equally curious. Congenital steatorrhœa is characterised by the passage, from birth onwards, of stools in which liquid fat, which solidifies on cooling, is passed with the fæces; a phenomenon which has long been known as specially associated with disease of the pancreas. The lecturer referred to investigations carried out by Dr. W. H. Hurtley and himself[2] upon a boy aged 6 years, and those made upon a second case, in a boy aged 3 years, by Drs. Reginald Miller and H. W. Perkins.[3] Neither patient showed any signs of illness apart from the steatorrhœa, and tests of hepatic and pancreatic efficiency gave no indication of disease of the liver or pancreas. The proportion of fat in the dried fæces was abnormally high in both cases, and in the first case there was a pronounced excess of neutral fat, as compared to fatty acids and soaps, especially when a diet rich in fat was taken. In the second case the excess was less pronounced. Utilisation estimations, by comparison of the fat passed with the fat taken, showed that in the first case the percentage of fat not utilised remained constant when the fat in the diet was doubled, whereas in the second case the loss increased the more fat taken. This striking difference of behaviour can be matched among the pancreatic cases of steatorrhœa in which such estimations have been carried out. The cause of steatorrhœa, as distinguished

[1] Inborn Errors of Metabolism. London: Henry Frowde and Hodder and Stoughton. 1909.
[2] Quarterly Journal of Medicine, 1913, vi., 242.
[3] Ibid., 1920, xiv., 1.

from the mere excretion of fæces rich in fatty substances, is still unknown. It cannot be attributed to mere excess of neutral fats, and Vaughan Harley found that the liquid fat consisted mainly of fatty acids. Nor is it wholly due to excess of fats, which may reach a very high figure even in cases in which there is no oil passed apart from the fæces. The lecturer was inclined to ascribe congenital steatorrhœa to the absence of some special pancreatic enzyme which plays an important part in the utilisation of fats.

The second error described—viz., congenital porphyrinuria—was recognised as such by Hans Günther[4] in 1911. A pigment of the porphyrin group, hitherto spoken of as hæmatoporphyrin, is present in traces in many morbid urines, but in quantities too small to influence their colour, and, in still smaller traces, in normal urine, fæces, and meconium. The excretion of red urine rich in porphyrin is met with as an acute event in some patients who take sulphonal, and in some cases in which no such drug has been taken. In other cases such urine is passed over considerable periods, and in others, continuously or intermittently, from birth onwards. Such porphyrinuria with deep red urine may be regarded as a distinct morbid phenomenon. Some 15 cases of congenital porphyrinuria have been recorded, and in most of them the urinary anomaly has been associated with annual eruptions of hydroa æstivale, affecting only the parts exposed to light. This association was first pointed out by McCall Anderson[5] in two brothers. Hans Günther's case has been subjected to the most thorough investigation, first by Günther himself, and later by Hans Fischer and by O. Schumm. Dr. Leonard Mackey and the lecturer hope to publish shortly an account of a fresh case which has been under observation for some time past. The scarring which the hydroa produces and the mutilations and loss of sight to which it may give rise, renders congenital porphyrinuria a most undesirable anomaly. The deposition of porphyrin causes a deep brown staining of the bones of the subjects of this anomaly, whereas the cartilages remain unstained, producing a most remarkable appearance. Hans Fischer,[6] who made a thorough investigation, by chemical methods, of the pigments in the urine and fæces of Günther's patient, has shown that uroporphyrin and stercoporphyrin differ widely in chemical composition, and that both differ from the hæmatoporphyrin of Nencki, but their spectra only differ, as Schumm has shown, in slightly altered positions of the absorption bands. There is evidence that stercoporphyrin is originally formed and that uroporphyrin is derived from that substance, which appears to be the chief agent in the production of hydroa in these cases. On the other hand, it is almost certain that other causes may also be at work in the production of hydroa æstivale, which is by no means always associated with porphyrinuria. The experiments of Hausmann[7] on white mice, and that of Meyer Betz[8] upon himself, show conclusively that the presence of porphyrins in the organism produces a remarkable degree of photosensitivity, and the same is true of the natural metabolic porphyrins. A white mouse injected subcutaneously with 0·02 g. of hæmatoporphyrin dies in a few hours if exposed to bright light, and in subdued light acquires a chronic light disease, whereas the animal if kept in the dark after the injection takes no harm, and after the lapse of a few weeks spent in darkness may be exposed to light with impunity. An intravenous injection of 0·2 g. rendered Meyer Betz sensitive to light for several months.

That the hydroa of a congenital porphyrinuric is due to the presence of porphyrin, and especially of stercoporphyrin in his tissues cannot be doubted. On the other hand, the fact that in some cases both the porphyrinuria and hydroa appear to result from exposure to light, presents a difficulty which calls for further investigation. Possibly the explanation will be found in the presence in such subjects of a chromogen of the porphyrin which is converted into the photo-sensitising pigment by the action of light. That the chromogen is so converted is known, as also the fact that as such it lacks the photo-sensitising power.

[4] Deutches Archiv f. klin. Med., 1911, cv., 89.
[5] British Journal of Dermatology, 1898, x., 1.
[6] Münchener med. Wochenschrift, 1916, lxiii., 377.
[7] Biochemische Zeitschrift, 1911, xxx., 276.
[8] Deutsche Archiv f. klin. Med., 1913, cxii., 476.

ACCIDENTAL INHALATION OF PETROL.

AN unusual accident was recently reported[1] from Queensland by Dr. A. W. St. Ledger. Whilst attempting to clear the petrol pipe of his car a healthy man, aged 34, sucked a considerable amount of the spirit into his mouth. As this happened "he caught his breath" and he was quite clear that some of it was inhaled. Thirty-six hours later, on admission to hospital, he complained of acute pain in the right hypochondrium and stated that the pain started immediately after aspirating the petrol. He adopted a position sitting up, stooping, and leaning towards the right side. The respiration (35 to the minute) was short and jerky and his breath smelt distinctly of petrol. There was no cyanosis or coughing. The respiratory movement seemed inhibited on the right side, but chest signs were very slight. The abdomen was immobile, with rigidity and distension of the epigastrium. There had been no vomiting. Six hours after admission he commenced coughing, the sputum being tinged with blood. The hæmoptysis increased, and with the increase of the pulmonary signs the abdominal ones became less definite. Subsequently a marked pleural effusion occurred, which after 14 days was gradually absorbed. Dr. St. Ledger regards the hæmoptysis as due to a mechanical distension of the bronchioles, brought about by sudden volatilisation of aspirated petrol. Many features of this case are obscure, but it seems likely that basal pneumonia must have developed on the right side, with involvement of the diaphragmatic pleura. This hypothesis would account for the abdominal symptoms and would give a clue to the genesis of the pleural effusion. The case is also puzzling in this respect that the patient did not cough on admission; it may be that, at this stage, 36 hours after the accident, a pleural effusion had already formed, interposing a water cushion between the parietal and visceral pleuræ, thereby preventing reflex pleural cough. There can be little doubt as to the connexion between the accident with the petrol and the symptoms which followed, and the case is a salutary warning to motorists who convert themselves into impromptu pumps.

[1] The Medical Journal of Australia, March 18th, 1922.

TUBERCULOSIS IN THE SERVICES.

THE paper read by Prof. S. Lyle Cummins before the Naval, Military, and Air Force Group of the Society of M.O.H. and reported in THE LANCET of April 29th, should help to focus attention on a subject which has not in the past been treated with the consideration it deserves. Before 1914, when only a small fraction of the general population was required by the navy and army, there was comparatively little difficulty in filling the services with perfectly fit males, and the problem of the unfit was left almost in its entirety to the civil authorities. But when the assistance of almost every young adult male and female in the country was required, the health of the nation's raw material became of vital importance to the services. It is to be hoped that this lesson of the war will not be forgotten, and that the coöperation it forced on the services and the civil authorities will continue indefinitely. As Prof. Cummins pointed out, the army provides wonderful research material, but in the past full use of this material has not been made. The lacunæ in our knowledge are, indeed, almost innumerable, and for want of full and accurate information the leader of a campaign against tuberculosis is at present in the position of a general whose knowledge of the country in which he is operating

depends on Ptolemaic cartography. Even the incubation period of tuberculosis is an unknown quantity, and it is impossible to say definitely whether, in any given case, the disease was contracted during service or re-activated by service. Prof. Cummins inclines to the latter explanation for the majority of cases, but there is the other view, supported by Colonel R. T. S. Simpson, that tuberculosis in the army is chiefly the result of infection after enlistment. Another problem to which Prof. Cummins addresses himself is the real or apparent susceptibility of certain British, French, and German guard regiments to tuberculosis. This observation raises the questions: Do tall men suffer more from tuberculosis than men of average height, and does standing motionless many hours a day promote tubercle? It cannot be a healthy occupation to stand by the hour bleeding into the most dependent veins, and waiters, it may be noted, are peculiarly susceptible to fatal tuberculosis. Though our knowledge is all too incomplete as to the genesis of tuberculosis, its end-results are sadly obvious. By the end of March, 1921, about 60,000 pensions (not only 6000 as stated in our issue of April 29th) had been granted for tuberculosis as the result of the war, and this number has subsequently been augmented. Were most of these cases re-activated by service or would the disease have broken out even if there had been no war? Till we can answer this and many other questions, we must dispense with the self-complacency of omniscience.

FIRST-AID PACKET OF THE U.S. ARMY.

IN the *Military Surgeon* for April, Major John P. Fletcher, Medical Corps, U.S. Army, Director of the Medical Equipment Laboratory at Washington, describes the proposed improved first-aid packet of the U.S. Army. As before it measures 4 in. by 2½ in. by 1½ in. (weight not stated), but contains more, and more useful, dressing material than did the old pattern, and it is much easier to open. A piece of gauze, 14 in. wide by 18 in. long, has laid on it 100 grains of non-absorbent cotton, and upon this 400 grains of absorbent cotton, each in one continuous layer. The gauze is folded round so that the absorbent cotton which goes next the wound is covered by a double fold of gauze; the folding is so done that the pad becomes 5 in. by 7 in. and it is then stitched firmly to the middle of a two-yard piece of 4½-inch gauze bandage, slipped between them being a bright red paper, 4 inches square, on which is boldly printed, on the side next the bandage, "Put other side next the wound." The ends of the bandage are torn down the middle for 15 inches, that this may be a four-tailed bandage. The pad and bandage are put together and folded into a W shape, wrapped in germ-proof paper, and then compressed so as to go into their place in the container. This has two shells of brass of which one at its edge fits into the other and is retained there by a non corrosive steel tape clamped on, whose end is doubled back for half-an inch, and through the doubled end a ¼ inch hole is pierced. The whole is carried in a pocket on the right side of the belt, from which thumb pressure on top will release the first-aid packet hung further to a hook by the ¼ inch hole in the steel tape mentioned. An extra small (10 lb.) pull will detach the tape from the packet, the clinching tape being left behind. The two shells are easily separated, and when the germ-proof paper is torn off, the first-aid dressing is immediately available. That the ingenuity of the device may be fully appreciated, reference must be made to the paper with its excellent illustrations. To any reader of the *Military Surgeon* who will be good enough to devise an improvement, and to describe that to the laboratory, gratitude is promised beforehand. It will be noted that the opened pad (5 in. by 7 in.) is about half the size of this page, and so is suitable for larger wounds than were provided for formerly. It is applied also very easily and with the minimum of handling, further good points.

STAMMERING—WHAT IS IT?

BY H. ST. JOHN RUMSEY, M.A.,
SPECIALIST IN DISORDERS OF SPEECH; LATE CHORAL SCHOLAR OF KING'S COLLEGE, CAMBRIDGE.

No one will deny that stammering is the most painful of all nervous habits to the sufferers themselves, and no less to those who listen to their efforts to speak. In the majority of cases it is at first merely a careless habit, chiefly due to excessive speed, which gradually grows into a nervous habit. When a child is learning to walk, it is not surprising that he may stumble at any moment; if he hurries, he will be expected to fall down. It has for many years appeared to me that there is a close parallel between learning to walk and learning to speak. Both are learned slowly, gradually and consciously in the initial stages, but when the child has gained some proficiency, both actions become subconscious. This fact is capable of illustration: If when walking to catch a train we discover that we are behind time, we say to ourselves: "I must hurry," and we do so: since the lay person cannot say which muscles are stirred into increased activity, his walking is clearly subconscious. The same description applies to speech, but here the mechanism is much more complicated. In a short and simple sentence the lips, the lips and teeth, and the tongue—back, middle, and tip—all work in turn: while they are at work the voice itself is set going or shut off as may be necessary to produce vowels and voiced consonants, or silent—i.e., unvoiced—consonants. Take a simple instance: the words *back* (*bak*) and *bag*. In the former we use *voice and lips* to make the "b." (If we omitted the voice, we should say "p" instead of "b.") We then keep on the voice (with the mouth in the right position) to form the "a," but the *voice* must be shut off as the back of the tongue makes contact with the velum or soft palate to produce the "k." In the word *bag* the method is identical except that the *voice* is continued through the last letter.

With such complicated mechanism to be controlled, first consciously as infants, and later subconsciously, it is not at all surprising that children stumble and trip in speaking. As time goes on and the thoughts run ahead of the powers of fluent speech, the stumbling increases. If at this point nothing is done to correct the child, he will probably grow nervous, and anticipate in his mind failure to speak: and so a merely careless habit has grown into a nervous habit, which may now be termed a nervous stammer.

Uncoördinated Mechanisms of Voice and Articulation.

In three cases out of every four a nervous stammer is due to lack of coördination between the vocal and articulating mechanisms, which usually takes the form of a delay in setting the vocal mechanism to work. In such a case the stammerer when wishing to say the word "enter" is observed with his mouth open, waiting for his voice to sound, but, unless he realises to what the silence is due, he cannot possibly know what to do in order to produce the word. On the other hand, if he wishes to say the word "king," he will probably say "k-k-k-k-king," because the voice which was required for the letter "i" has failed him, and he continues to say the "k" hoping that the "i" will start itself somehow or other. Thus we find that silence on a vowel and repetition of a consonant are very often both the result of delayed vocal mechanism.

Method of Correction.

The method of correcting this delayed vocal sound, which has caused a nervous stammer, must be studied now. Although the mere realisation of what is really wrong will help, we must go into details. Breathing must be mentioned first, for without a firm and even supply of breath the vocal cords will not vibrate properly. Many useful books have been written to explain and teach full and deep breathing, intercostal and diaphragmatic: furthermore, in most

schools breathing exercises are carefully taught and practised every day. Taking it for granted, then, that the system of deep breathing has been mastered, we pass on to the more technical question of *vocal tone*.

Vocal Sound and Anticipation of Difficulty.

We often hear of the stammerer who can sing fluently but cannot speak a sentence. The explanation is simple. When singing, the primary idea in the mind is the firm vocal tone, and—what is far more important, and incidentally far more helpful to the stammerer—that firm vocal tone is going to be made on a definite note. So a very clear mental picture of the sound has been made; the singer knows what is going to happen and for this reason the vocal sound is made as desired, and the word finds itself. With the speaker the case is very different. Here the mind is *occupied with the word rather than with the voice*. In the case of a nervous stammerer, the mind is already anticipating probable failure over the consonant as in the word "king." As we saw above, the result of the effort will be "k-k-k-k-king." The mind is occupied with the difficulty of making the "k," while all the time the "k" is presenting no difficulty at all. This is proved by the fact that the "k" has been made four times before the word "king" is finally said. The real difficulty lies in the letter "i" because the vocal tone was not ready and mentally anticipated. If the stammerer will think clearly of the vocal sound in the word "king" and say it slowly, firmly, and as evenly as possible, mentally anticipating the *vocal sound* in the "ing"—the initial "k" will nearly always find itself, as it does in the case of the singer.

Another important point to remember about the speaking voice is that we have only got one voice. Whether we sing or speak, the vocal tone should be the same—firm, open, and resonant. When a trained singer speaks we all look round at the unaccustomed sound of a fully produced vocal tone in a spoken sentence, and we generally say: "He must be a singer." The singing and speaking voices should be identical in tone, only differing in *pitch*. In singing we move from one definite note to another; in speaking we slide up or down. There are numberless books to teach open voice production and resonance. All that applies to the production of the singing voice applies equally to the speaking voice.

Need of Expert Assistance.

Needless to say, the best results cannot be obtained without the advice and supervision of an expert who can give the stammerer the benefit of a varied experience in speech disorders. It would be futile to try to learn Latin, mathematics, or singing from books alone. The chance of success without assistance in the case of a stammerer would be very small, since everything depends upon minute differences of tone, only audible to a specially trained and experienced ear. The stammerers' rule is this: Speak firmly and slowly, carrying the vocal tone as evenly and smoothly as possible through the whole sentence or phrase. Read aloud for a quarter of an hour twice or thrice a day, *thinking all the time about the vocal tone*. This is the best practice and it must be absolutely regular. As I said at first, stammering is a habit, which can best be broken down by replacing it by a new and stronger habit. Space only allows me to speak of the commonest form of stammering—that is, delayed vocal mechanism: but three out of every four cases are due to this defect and will yield to systematic and persevering practice on these lines.

ROYAL SOCIETY OF MEDICINE.—An interesting ceremony took place at the annual dinner of the Society on May 5th, when the Section of Laryngology was presented with a badge by Sir William Milligan, President of the section. The badge, which is the work of the Goldsmiths and Silversmiths Company, is in gold and enamel with a centre medallion representing the profile of Signor Manuel Garcia, the "Father of Laryngoscopy," whose epoch-making discovery was communicated to the Royal Society of London in the year 1855.

CONTROL OF VENEREAL DISEASE.

THE RETENTION UNDER TREATMENT OF INFECTED PERSONS.

ON May 3rd a conference was held at the Guildhall, under the auspices of the National Council for Combating Venereal Diseases, and the chairmanship of Lord Gorell. The subject for discussion was How Persons Infected with Venereal Disease can Best be Retained under Treatment until a Non-infective Condition has been Attained.

The Lord Mayor said that of 1391 persons under treatment in the City of London, 831 discontinued attending while still in an infective state. Inquiry showed that this condition of things was prevalent throughout the country, hence this conference, at which he invited a full and free discussion.

Education v. *Compulsion.*

Lady Barrett put forward a plea for more and clearer education on the subject. The sufferers needed to be assured that the early cessation of symptoms of syphilis did not mean the cure of the disease, the salvarsan injections requiring to be supplemented by a prolonged course of mercury; also that those in whom the W.R. quickly became negative were liable to suffer from serious sequelæ. Gonorrhœa was still regarded much too lightly, and there was need to teach that such conditions as gonorrhœal ophthalmia, rheumatism, stricture, and sterility ensued. The clinics were the best places in which to impart this education. Private doctors did not find the same difficulty in inducing sufferers to continue the treatment as did those in charge of clinics, possibly because the private patient asked more exact questions, and received a fuller assurance of what was required, possibly because people valued more what they paid for. As to compelling people to go to a doctor when they had venereal disease, the presumption of the ability of the patient to diagnose the disease could not be admitted. Moreover, attempts to introduce compulsion would uproot the essential confidence between doctor and patient. Some relaxation of etiquette might be tried, enabling a doctor to prevent an infected person marrying if his warning were disregarded.

Dr. Nabarro said that at the clinic in connexion with Great Ormond-street Children's Hospital during the last five and a half years 340 cases of these diseases had come under his notice. He had found that the mercurial treatment in conjunction with salvarsan or other similar compounds needed to be even more prolonged for congenitally syphilitic children than for adults. He suggested that a family known to be syphilitic should be marked, and every effort made to bring the mother up for treatment, especially if and when she again became pregnant.

The Mayor of Fulham said that the Association of Approved Societies concluded that notification was not desirable, education being considered preferable.

The Need for Fresh Legislation.

Dr. C. J. Macalister (Liverpool) said that in order to guard the general community against infection legislation should be on the lines of notification, but under the direction of the public health authorities. The present state of matters meant a great waste of energy, time, and money. Dr. Margaret Rorke, from her experience at the Royal Free Hospital, spoke of the discouraging results of education, persuasion, and cajoling in inducing patients to continue treatment until the infective stage had passed. Dr. Louis Parkes claimed that sufficient powers were vested in the Ministry of Health to make further legislation unnecessary. He praised the law in Western Australia, where it was required that every person, within three days of becoming aware, or even suspecting, that he or she was suffering from venereal disease, should consult a medical practitioner, and should continue treatment until uninfective.

Mr. G. Johnson said the Association for Moral and Social Hygiene opposed notification, and objected

even more strongly to compulsory treatment. Notification of other diseases, such as small-pox, did not include compulsory treatment. Dr. C. Franks said that if notification were insisted on it must provide for a penalty to be imposed. But he thought 95 per cent. of the work was to be done by persuasion. Councillor Albert Thompson said that in Liverpool upwards of 6000 new cases came up each year, the average attendance at the clinics being 78,000. But 45 per cent. to 50 per cent. of the cases ceased to attend as soon as they had been relieved of actual suffering. If a person would not submit himself to sufficient treatment his name and address should be forwarded to the M.O.H. Dr. Hamilton Wood did not think notification should be applied to those who voluntarily submitted to sufficient treatment. The question of the disease in rural districts differed materially from that in towns, because of the smaller amount of medical attention available and the greater distances to be travelled.

Dr. L. Stewart Sandeman emphasised the need for legislation to deal equally with men and women, pointing out that no objection had been raised to the notification of ophthalmia neonatorum. Mr. E. B. Turner agreed that education was the most important factor in this crusade. Notification would be useless unless linked up with some form of continuous treatment; and this, it had been contended, would either drive sufferers to quacks or cause them to abstain from treatment. Public opinion was not yet sufficiently enlightened for a measure of notification to be brought in. Mr. C. Gibbs enumerated the reasons why it was impossible to get patients to attend for the full course. He agreed that the clinics were the best centres for disseminating exact knowledge on these matters. Dr. J. H. Stowers said that it was impossible to estimate what proportion of infected people were treated. Every doctor should instruct his patient on the dangers and the necessity for continuous treatment. A measure of control would quicken the sense of responsibility felt by the public in regard to this scourge. If compulsory treatment were adopted there must be a wide extension of facilities.

Colonel T. F. Ritchie, R.A.M.C., late director V.D. Section, League of Red Cross Societies, gave details of the system of notification and compulsory treatment of venereal diseases adopted by the Canadian authorities, and said that although the latter had the power to order a man or woman to carry on with continuous treatment, they did not use it to any great extent. They relied more on their "social service workers" to bring pressure on patients. He questioned whether we in this country were making sufficient use of the facilities available. It would be instructive if officers of clinics would say what they considered was a standard to be adopted for non-infectivity in chronic gonorrhœa. A patient suffering from syphilis might object to treatment on the ground that the injection of salvarsan was sometimes attended by untoward and even fatal results. Mrs. Neville Rolfe gave a summary of the position with regard to the question of continuous treatment as far as the National Council were concerned, dealing especially with the Canadian system, which had been investigated by the Eastern Commission sent out by the Colonial Office and the National Council for Combating Venereal Diseases.

Certain Local Schemes.

Dr. Mary Sturge (Birmingham) hoped all possible evidence would be obtained as to how various Acts had worked in the colonies and in other countries before a definite opinion was given by those interested in this country. Dr. L. M. Henry (medical officer of Blackburn V.D. Department for Women) said that in Blackburn, a town of only 140,000 inhabitants, they had a complete scheme of educational propaganda. By enlisting the sympathy of the mothers and, through the mothers, getting in touch with the young girls, they could do far more than any notification powers would enable them to do. Mr. McLeod Yearsley (consulting aural surgeon, L.C.C.) said that of 1662 cases of acquired deafness from all causes 128, or 7·7 per cent., had been due to congenital syphilis. It seemed to him that any education, especially of expectant mothers and young women, should include a knowledge of how congenital syphilis affects the child. As a rule parents did not know from what their children were suffering. Mrs. Bethune Baker (Cambridge) emphasised the value of individual moral education. Mr. Morro outlined a scheme formulated by the Paddington Propaganda Committee, by which patients attending a venereal diseases clinic would be warned that they must continue treatment until it had been completed. If after the warning they failed to be treated they would be reported to the M.O.H., whose duty it would be to take the necessary steps to see that treatment was continued.

Dr. H. Wansey Bavly (hon. sec. of the Society for Prevention of Venereal Disease) maintained that compulsory treatment was a corollary of notification and it would be impossible to enforce it unless some system of notification had been established by legislation. Personally, he advocated a scheme which would insist on the immediate notification of primary and secondary syphilis to a special medical officer of health, and which would impose heavy penalties for omission to notify and also for treatment of syphilis by unqualified persons. Mr. MacGregor Robertson outlined the steps taken in Scotland to deal with the question, and pointed out that 40 to 60 per cent. of the people attending the clinics only did so in order that they might be relieved of their own physical disabilities. That class of person was stubbornly, persistently, brutally indifferent to the welfare of the community, and nothing but the force of compulsion would enable those responsible for their treatment to control them until they had become non-infective. It was for those 40 or 50 per cent. they were asked to legislate, not for those respectable members of the population who had temporarily lost their self-control but who were glad to get treatment. Dr. J. H. Sequeira (London Hospital) maintained that it would not be possible to enforce treatment under any circumstances unless it was a statutory obligation on the individual to start treatment; otherwise they were penalising those who did start. Dr. McConnell (Glasgow) suggested that the National Council be asked to form a committee of inquiry to go publicly into the question and see what should be done to make notification effectual. Mrs. Ganley said that the Battersea Propaganda Committee was in favour of a modified system of notification. In Battersea there had been established a maternity home to which was attached a V.D. clinic. To this all expectant mothers could come for treatment. In that way they came in contact with those who did not know that they were suffering from the disease. Dr. Letitia Fairfield thought too little attention had been paid to the social workers who were to be the crux of the machinery necessary in the carrying out of any intended system of notification. Much expense and many difficulties would be encountered. It might be better to make syphilis only notifiable at first.

RECENT LEGISLATION IN FOREIGN COUNTRIES.

The Committee of Inquiry recently appointed to consider and report upon the best medical measures for preventing venereal disease in the civil community will find much material for study in the methods being adopted in foreign countries. In THE LANCET of April 29th we commented on the new venereal legislation in Germany, and now we learn that a comprehensive scheme for dealing with venereal disease is being prepared by the Ministry of Health and Physical Education of Czecho-Slovakia in anticipation of the passage into law of a Bill which has already passed the Senate. Our special correspondent informs us that a venereal diseases survey is being planned which would enable the ministry to apply legislation with the greatest possible intelligence and economy. The most fundamental part of the proposed law deals with the treatment of venereal disease, which is made

compulsory. As to the expense involved, the State is to provide funds for the treatment of the poor, but since the majority of people are already provided for by the insurance system, it is not anticipated that this charge will be very great. Some of the insurance societies have dealt very generously by members afflicted with venereal diseases, paying for all necessary drugs and examinations and also for the services of a specialist. Some societies have, moreover, introduced a system of control over patients who do not return for periodical treatment after acute symptoms have subsided. This follow-up system will doubtless be adopted by other insurance associations and is expected to develop into a most powerful weapon against the spread of venereal diseases. The new Bill does not provide for compulsory notification; doctors are empowered to report only those cases who do not continue treatment or are a menace to the community. It was felt that while some kind of authority over patients lacking conscience should be given to medical men, patients must not be driven into the hands of quacks through fear of disclosure. It is not anticipated that many cases will be reported to the health authorities under this section. The Bill makes it obligatory for the physician to instruct the patient on his condition and on the danger to himself and to society if he does not follow the regime advised. Treatment by quacks and the advertisement of drugs purporting to cure these diseases are forbidden. The second part of the Bill deals with prostitution. Soliciting in public places is to be made illegal, and it is expected that the supply of prostitutes will decrease if it is made impossible for them to offer themselves for hire and if the brothels are closed. The State will provide institutional accommodation for prostitutes willing to give up their profession. The third part of the Bill deals with the punishment of those who have menaced the health of others by sexual intercourse while infected with venereal disease. There are apparently signs that the incidence of these diseases, which increased rapidly during the war, is now declining in the Czecho-Slovak Republic, and hopes are entertained that the passing of the new Bill will give an impetus to the fight against their spread.

The measures actually in force in Sweden have just been summarised by the International Labour Office. Unqualified practitioners are forbidden by law to treat cases of venereal disease. Free medical attendance is provided both in hospital and outside, and the instruction of the public is being undertaken. Patients suffering from venereal disease in a communicable stage may be compelled to comply with the instructions of their medical man, and persons regarded as dangerous sources of infection may be forced to submit to examination and treatment. Corrective and punitive measures include a reformatory for prostitutes and imprisonment for the crimes of procuration or the transmission of infection. Venereal disease in a communicable stage is a legal bar to marriage and also constitutes a ground of divorce. In addition to these general regulations various special measures are in force for the prevention and control of venereal disease among seamen. It will shortly be made compulsory for all ships to be supplied with specified medicines and apparatus for prophylactic and curative treatment. The Swedish Royal Board of Health recommends that every ocean-going vessel should have among its crew a man trained to administer prophylactic treatment, and also that steps should be taken internationally to provide hospital treatment in foreign ports for seamen suffering from venereal disease.

Other Scandinavian countries are no less actively tackling the problem of venereal disease,[1] while our Roumanian correspondent reports[2] even more stringent regulations. Unfortunately, it will inevitably take a few years before the success or failure of any new legislation manifests itself, and the problem before us is urgent. It is safe to prophesy that in England at least a scheme that imposes the least possible restrictions and obligations is likely to be more permanently effective than one which enchains both patient and doctor in a mesh of formal records.

[1] THE LANCET, Feb. 4th, p. 244.
[2] THE LANCET, March 18th, p. 549.

NUCLEINIC ACID FOR TABES AND G.P.I.

Prof. Oskar Fischer of the German University in Prague has announced at a session of the Prague Medical Society the results of his experiments on the effects of his new preparation against general paralysis of the insane and tabes, which he calls Phlgethan. The preparation has been examined and tested by Prof. A. Wiechowsky for its pharmacological qualities before it was tried on actual cases of human cerebral syphilis. The preparation contains nucleinic acid, which has long been used for the treatment of these conditions. In 1892 Prof. F. Hornaczevsky, of the University of Prague, made a preliminary announcement on his experiments with nucleinic acid, which when injected into the blood of animals produced a marked increase of leucocytes. Since then nucleinic acid has been tested in G.P.I. and in tabes, and sometimes good results have been reported. It is stated that local medical opinion on the possible value of the remedy is divided. Some medical men are sceptical about any new means of treating these diseases on account of their degenerative nature, and the changeable clinical picture which they present makes the effect of any treatment very hard to assess.

THE HUMAN NEO-CEREBELLUM:
PROF. WINKLER'S ADDRESS.

UNDER a scheme for the international exchange of lecturers fathered by the University of London and favoured by the Anglo-Batavian Society, Dr. C. Winkler, professor of clinical psychiatry in the University of Utrecht, gave an advanced lecture on the Human Neo-Cerebellum on May 3rd at the rooms of the Royal Society of Medicine. The chair was taken by Sir Frederick Mott, F.R.S., and a large audience listened to the lecturer with keen interest.

Prof. Winkler first briefly referred to the researches of neurologists and others upon the cerebellum. He paid especial tribute to the important additions to our knowledge of the subject made by Englishmen, alluding especially to the work of Hughlings Jackson, Sherrington, and Elliot Smith. The lecturer then proceeded to describe the clinical observations he had made upon a case of olivo-pontine atrophy. When he first saw the patient, a man, aged 53, the regular symptoms of cerebellar ataxy were present. At the autopsy the brain weighed 1380 g., and the most striking point about it was the marked atrophy of the pons and olivary body. The atrophy of the cerebellum was only moderate. Prof. Winkler demonstrated the changes which are found in olivo-pontine degeneration, which he summarised as follows: (1) Loss of cells in the pontine, arcuate, and olivary nuclei. (2) Degeneration of their axons, including the myelinated fibres and the intragranular plexus. (3) A slight atrophy in the cells of the granule layer. (4) Purkinje cells, the pericellular plexus, and structures surrounding the dentate nucleus offer a longer resistance to the disease, and the superior peduncle is normal.

He then referred to the effects of experimental removal of the cerebellum in animals, and pointed out that as long as the granular layer was left, there was no loss of cells in the nuclei connected with it. It is therefore impossible to conceive that the loss of cells in the pontine, olivary, and arcuate nuclei are consecutive to a cerebellum in which the granule layer, as was found in his case, showed only slight alterations. His premiss is that the cerebellar atrophy which he found was a secondary atrophy to that of the olivary, arcuate, and pontine nuclei. Prof. Winkler referred to the researches of Essick upon the human fœtus of 2½ cm. in which he showed the development of the olivary, arcuate, and pontine

nuclei, and the distal formation of the olivo-arcuate bulbar cells which surrounds the bulb laterally and produces the olivary and later the arcuate nuclei. Next occurs the proximal band of cells which forms the pontine nuclei. These olivo-pontine cells being of later phylogenesis have not the vital resistance of the older cell structures, and tend to primary degeneration. Upon this basis Prof. Winkler considers that cases of primary olivo-pontine degeneration which cannot be explained by vascular disease or extra-neuronal causes, strongly support the embryological observations that these olivo-pontine bands of Essick are of later phylogenetic development.

While admitting that in the vertebral series the comparative anatomical researches of Edinger and Connolly appeared to show that the vermis and flocculus constituted the (old) palæo-cerebellum, and the lateral lobes the (new) neo-cerebellum, Prof. Winkler is of opinion that there is a weak point in their argument that there is a superposition of a new cerebellum upon an old cerebellum. From an evolutional point of view and from his researches he would favour an interpolation of a new structure derived from the olivo-arcuate pontine neclei. In human evolution the preponderant importance of floccular development is lost; it probably retains a fundamental function of static equilibrium. That the olivo-pontine fibres are of later origin than the spino-cerebellar is shown by the fact that they are not myelinated until a later date.

Prof. Winkler illustrated by a wax model and lantern-slides the evolution of the neo-cerebellum by interpolation instead of superimposition of a new on an old cerebellum, but he was unable to affirm that the fields of successive development shown by him in the cerebellar cortex corresponded to the successive myelination or ripening of the spinal, olivary, and pontine fibres. Reverting to the case described and its anatomical finding of primary olivo-pontine degeneration, he pointed out that sections through the cerebellum show a normal amount of the old spino-cerebellar fibres. All the new fibres olivo-pontine in origin entering the cerebellum in the mid line had disappeared, leaving, however, the intermingled old fibres intact. This supported the view that the bands of Essick, found in the human fœtus of 2½ centimetres, are of later evolutional origin and may be associated with the new cerebellum.

DINNER TO PROF. WINKLER.

In the evening the Anglo-Batavian Society gave a dinner at the Langham Hotel in honour of Prof. Winkler, with Sir Walter Townley in the chair. The toasts of "The King" and "The Queen of the Netherlands" having been honoured, the toast of "The Guest of the Evening" was proposed by the chairman, and replied to by Dr. Winkler. Prof. Starling then proposed "The Health of the Anglo-Batavian Society," and pointed out how from her unique geographical position Holland was able to bring this country into touch with modern European thought, and he believed that the society could do very much towards making a better understanding between this country and her European neighbours. Mr. W. R. Bisschop, in reply, mentioned that the aims of the society included the importation of English ideas of sport into Holland, and mentioned a recent athletic success of the Dutch. "The Health of the Guests" was proposed by Sir D'Arcy Power, and responded to by Sir James Purves Stewart. Dr. Roosmale Netveu proposed "The Health of the Chairman." No man, he said, had done more towards bringing about a better understanding between England and Holland than Sir Walter Townley during his ambassadorship in Holland.

LITERARY INTELLIGENCE.—A new book by Sir Frederick Treves will be published immediately by Messrs. Cassell and Co. dealing with "The Lake of Geneva," and especially with the lesser known byways, and illustrated by the author's photographs.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Professional Provision for Old Age and Infirmity.

AT the present time Austrian medical men have few or no means of provision against old age or infirmity; the value of life insurance policies has so depreciated that the total sum received would frequently not suffice for a month's expenditure. Doctors with State appointments, and those employed by corporations, are entitled to old-age pensions, but the outlook for the bulk of the profession is very serious. The medical organisation of Vienna has appointed a committee to consider the matter; the difficulty of establishing a system of pensions is rendered practically insurmountable by the instability of the currency, but another idea has been suggested—namely, that all members of the profession should enter an agreement to contribute a certain sum—say, 1000 kronen—as often as any member dies or reaches his sixty-fifth year. As there are about 6000 doctors in Austria, this would supply about 6 million kronen in each instance—enough to keep a family going for a considerable time, or to enable a widow or dependants to start a business. The only difficulty, of course, is that the yearly expenditure on these subscriptions by the individual doctor might be a severe burden; investigations are being made into the "age incidence," disablement by age or illness, and mortality of the profession. No statistics on this subject exist in Austria or, I believe, anywhere else at the present time. Should the committee consider the plan workable, the medical organisation would take it up energetically, and existing provisional arrangements would at once be merged in the larger scheme. The idea is not new; several private societies have worked similar arrangements, but this would be the first time that the medical profession of a whole country has thus united to assist its members. The sums paid during a year would be much less than the premium on life insurance for a corresponding amount.

Prevention of Sale of Alcohol to Juveniles.

The National Assembly has begun the fight against alcohol, as mentioned in a previous letter (vide THE LANCET, March 11th), by declaring it a criminal offence to sell or give to persons under 18 years alcoholic liquids, either beer, wine, gin, whisky, cider, or brandy, or any other beverage containing alcohol, or to permit them to drink such liquids. The law will come in force on July 1st, but it contains a loophole—juveniles will be allowed to fetch such beverages for adults, and to this reservation the anti-alcohol enthusiasts are opposed. Nevertheless, this beginning is significant, and will shortly be followed by a law against intemperance and drunkenness, which is already being studied in committee.

Pneumoventriculography.

At a recent meeting of the Vienna Medical Society Prof. Schüller and Dr. Denk showed a series of X ray photographs obtained by means of injecting air or pure oxygen gas into the ventricles of the brain. The method is not new, although not extensively known. Several times before and during the war it had been noted that penetrating injuries of the head caused bubbles of air to appear in the X ray photographs taken some time later. Dandy was the first to use the method of filling the brain spaces systematically with air for explorative purposes. In the clinic of Eiselsberg (Vienna) 14 cases were hitherto examined in this way. There is usually very little reaction—sometimes a little headache and nausea, which soon disappear. The air is injected through a lumbar puncture or by direct brain puncture. If communication between the brain ventricles and the medullary space is interfered with, an obstruction in the region of the foramen Magendie or the aqueduct of Sylvius is most likely. Tumours of the brain stem produced a marked dislocation of the whole system of the ventricles to one side in two cases; the diagnosis was verified by autopsy. The

difference in filling of the cerebellar spaces can be significant of cerebellar tumours, but hitherto the method is not fully developed and not yet absolutely reliable. Tumours of the medulla caused pain during injection, which was localised to the spot where the tumour was actually found later. Thus this method of examination might prove of real value in differential diagnosis of brain and medullary tumours.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The New Health Insurance Bill.

THE actual text of the Health Insurance Bill recently introduced by the Government differs in many points from the original draft which I described some months ago.[1] The system of insurance now proposed will be far-reaching, since it will be a conjoint system of insurances. Any insured employee will have the right in case of illness to free medical and surgical attendance; he will be supplied with the prescribed drugs also free of charge, and will receive an allowance while incapacitated. This will constitute only one of the many advantages of the health and invalidity section of the insurance scheme, since the wife and any child under 16 of an insured employee have the right to free medical or surgical treatment. Furthermore, the Bill includes the last few days of pregnancy, confinement, and a certain number of days following the latter in the conditions entitling the patient to benefits. A birth allowance will be granted, and an old age pension is included in the conjoint system of insurances. In case of death an allowance is granted to the family of the deceased insured person. Insurance is compulsory for any employee whose yearly salary is not above Fr.10,000; it is operative for land workers and farmers under 30 years of age, after which period their right to insurance lapses. The funds are made up by State subsidies and a 10 per cent. tax on salaries, half being paid by the employee and half by the employer. A panel system is also proposed, but apart from a fixed yearly fee for every patient on his panel the medical practitioner will receive what will be termed a "ticket modérateur" from the patient at each visit or attendance. The value of these tickets will vary from 25 to 75 centimes, and they will have to be bought by the patient; this provision is inserted to prevent a patient from abusing his right to call on the services of his panel doctor. The official introduction of the Bill has given rise to much discussion at the meetings of various medical societies, syndicates, and associations.

Antivenereal Prophylaxis.

At a recent meeting of the Société de Médecine Publique et de Génie Sanitaire Mr. P. Faivre said that there are 172 V.D. clinics in France at present; 150 are under the Ministry of Health and 127 are annexed to hospitals. He pointed out that railway fares are paid by the State when any pauper patient, having the legal right to be treated at a free hospital, has to travel up from the country for treatment at a V.D. clinic. Mr. Faivre demanded special facilities for treatment of sailors of the mercantile marine who happen to be suffering from syphilis, and urged the necessity of improving the existing system of inspection and treatment of prostitutes.

A Paris Centre for Medical Hospitality.

Prof. H. Hartmann, President of the Association pour le développement des relations médicales entre la France et les pays alliés ou amis and the Committee of the Association Générale des Médecines de France have recently petitioned the Paris County Council to place at their disposal, rent free, one of the building sites in their possession in order to erect a building to be called "La Maison Médicale" where the medical profession could entertain foreign doctors when they come to Paris on the occasion of various congresses. They pointed out that by this means the prestige of the French medical profession would be upheld and the development of relations with other countries would be fostered. At a recent meeting held under the presidency of Prof. H. Roger, dean of the Paris Faculty of Medicine, it was announced that the County Council were unable to meet this demand; some medical men proposed the formation of a company for this purpose, the shares to be held by medical men. A committee was appointed to study the proposal, and various medical societies and associations in France will be invited to appoint a delegate to a preliminary committee which will suggest a suitable scheme for carrying out the plan.

[1] THE LANCET, 1921, ii., 624.

The late Prof. Louis Ranvier.

Prof. Louis Ranvier, whose name is associated with the structure of nerve fibres (node of Ranvier), died recently. He was born at Lyons in 1835, appointed professor at the Collège de France in 1875, became a member of the Académie de Médecine in 1886, and of the Académie des Sciences in 1887. He was the author of numerous communications to the Société de Biologie and the Académie des Sciences and of several text-books, in which he described in an original manner numerous points which had escaped the observation of other histologists. He was a lecturer for 25 years and during this period of his life he devoted most of his time to researches in histology: he retired 20 years ago and ever since has lived in the country as a gentleman farmer, his hobby consisting in the application of his physiological knowledge to various experiments concerning agriculture and cattle-breeding.

CONGRESS OF RADIOLOGY AND PHYSIOTHERAPY.

THIS congress will be held in London from June 7th to 10th, under the auspices of the Section of Electrotherapeutics of the Royal Society of Medicine and of the British Association for the Advancement of Radiology and Physiotherapy. The president of the congress is Sir Humphry Rolleston; chairman of the executive committee, Sir Archibald Reid; secretary general, Dr. Stanley Melville; assistant secretary, Dr. Justina Wilson. All communications of a general nature should be addressed to 9, Chandos-street, Cavendish-square, W. The provisional programmes giving the discussions and openers are as follows: Section of Radiology (Dr. C. Thurstan Holland, president), June 7th, 10 A.M., the Normal Stomach, Dr. A. E. Barclay (Manchester), Dr. Peremans (Antwerp), Drs. Colombier and Tribout (Paris); 2.30 P.M., the Abnormal Stomach, Dr. Béclère (Paris), Dr. Murdoch (Brussels), Sir Archibald Reid (London). June 8th, 10 A.M. and 2.30 P.M., Deep Therapy by X Rays and Radium, Dr. Ledoux-Lebard (Paris), Mme. Laborde (Paris), Dr. Casman (Antwerp), Mr. Hayward Pinch and Dr. R. Knox (London). 9th, 10 A.M., discussion on Deep Therapy continued; 2.30 P.M., demonstrations at various hospitals of intra-peritoneal injection of oxygen, by Mr. J. E. H. Roberts and Dr. Martin Berry (London), and Dr. Peremans (Antwerp). Section of Electrology (Dr. E. P. Cumberbatch, president): June 7th, 10 A.M., the Action of the Direct Current (constant) on the Tissues in Health and Disease (meaning the tissues beneath the skin and mucous membrane), Dr. W. J. Turrell (Oxford), and others. June 8th, 10 A.M., the Uses of Electrical Methods in the Diagnosis and Prognosis of Paralysis, Dr. R. Woods (London), Dr. Bourguignon (Paris). June 9th, 10 A.M., discussion, the Physiological Action and Therapeutic Uses of High-Frequency Currents, Dr. E. P. Cumberbatch (London), Dr. Nobele (Ghent). Section of Physiotherapy (Dr. J. B. Mennell, president): June 7th, 10 A.M., Cardiac Disorders, Prof. Bergonié (Bordeaux), Drs. Justina Wilson, B. T. Parsons-Smith and G. H. Hunt (London). June 8th, 10 A.M., Re-education of Muscles, Dr. Kouindjy (Paris), and others: Scoliosis, Dr. W. H. Broad (Liverpool), Dr. J. R. Kerr (St. Helens), and others. June 9th, 10 A.M., Backache and Referred Pain, Dr. Gunzberg (Antwerp), Drs. C. J. F. Westman and E. F. Cyriax (London), Drs. Wetterwald, Helène Sosnowska and Durey (Paris). There will be an interesting exhibition of X ray and other apparatus. The subscription for British members is £2 2s., and that for French and Belgian members, Fr.40. The wives of all members are invited to all receptions. All communications may be made in French or English. A résumé of all opening papers should reach the secretaries of the sections not later than three weeks before the opening of the congress. Applications for membership and subscriptions should be sent as early as possible to Dr. James Metcalfe, hon. treasurer, 133, Harley-street, London, W. 1.

Correspondence.

"Audi alteram partem."

TREATMENT OF MALIGNANT DISEASE BY A DIET DEFICIENT IN FAT-SOLUBLE VITAMIN A.

To the Editor of THE LANCET

SIR,—It may perhaps be of interest to supplement Dr. Stanley Wyard's report in THE LANCET for April 29th by appending the list of foods allowed and to be avoided respectively, which I drew up, with the kind help of Prof. Gowland Hopkins, for the purposes of our investigation.

Apart from the question of the possible influence of such a dietary on malignant disease, the investigation, of which the work at the Cancer Hospital has formed a part, constitutes, so far as I am aware, the first attempt to estimate the effect on the resting human subject of a diet which, though markedly deficient in the fat-soluble A vitamin, is otherwise sufficient in amount, well-balanced, free from monotony, and of a palatable nature.—I am, Sir, yours faithfully,

May 4th, 1922. S. MONCKTON COPEMAN.

SUGGESTED CANCER DIETARY.—*Deficiency of "Growth-Accessory" Vitamin (Fat-Soluble A).*

ALLOW.

White bread, or toast.
White flour.
Margarine (free from animal fat).
Lard.
Suet, free from animal fat (Mapleton's "Nutter").
White fish (if fried, use olive or other vegetable oil).
Tinned meats (avoid fat, so far as possible).
Meat extracts, Bovril, Oxo, &c.
Marmite (yeast extract) "flavoured."
Bacon, ham.
Rice, ground rice, cornflour, tapioca, sago, semolina.
Macaroni and its products.
Milk (*separated, dried*) or "Solac."
Cheese (skim-milk).
Sugar, treacle.
Jams, marmalade.
Root vegetables (except carrots).
Tomatoes, tinned.
Well-boiled cabbage. The inner whitish portion. The outer green leaves should be rejected.
Celery—raw or cooked—avoiding any green portion.
Pea-flour (dried split peas or lentils).
Mushrooms.
Fruit of all kinds, tinned or fresh, cooked or uncooked, except bananas.
Potatoes (baked or boiled in skin, or fried in vegetable oil).
Bird's or other custard powder.
Tea, coffee, cocoa.
Spirits, light wines, mineral waters, beer, stout.

AVOID.

All kinds of brown or wholemeal bread.
Eggs (white of egg may be used if desired).
Butter.
Fresh meat (unless in slices free from fat, and fried in "Nutter" fat).
Cream, new milk.
Porridge.
Green vegetables.
Salads—e.g., lettuce, &c., and other uncooked vegetables, except as above.
Fish (oily): mackerel, eel, herring, red fish of all kinds (salmon, red mullet, &c.).

NASAL DIPHTHERIA AND FOREIGN BODIES.

To the Editor of THE LANCET.

SIR,—May I add the notes of one further case to those described in THE LANCET of May 6th?

Geo. H., aged 5, was brought to the school clinic on 10/10/17 with a history of a bad smelling nasal discharge lasting two years. As the nasal swab showed diphtheria bacilli, although the patient was apparently in good health, he was admitted to the fever hospital on Oct. 11th. It was found that a bad smelling yellow discharge was present which came chiefly from the left nostril. On Oct. 16th a swab was submitted for examination to the Lister Institute, and the organism was found to be virulent to guinea-pigs and to have the cultural characteristics of the diphtheria bacillus. Despite local treatment the nasal swabs remained positive and the boy was discharged at the request of his parents on Feb. 7th. The swabs remained positive on March 5th. A few days later the mother whilst syringing the nose displaced a button which she brought in triumph to the Health Office. The nasal discharge cleared up thereafter, and two further swabs taken later were negative.

For many years I have been impressed by the frequency with which swabs from superficial sores in diphtheria patients give positive results. Also it has always been common knowledge that swabs from the nasal septa of patients suffering from *one-sided irritating, it may be blood-stained*, nasal discharge frequently show diphtheria bacilli. It is for these reasons and because of their high infectivity that in grouped diphtheria in Brighton I first pick out and swab contacts suffering from fibrinous rhinitis and superficial sores, and disregard healthy contacts and those with non-irritating nasal discharge.

It would seem that the conditions present in the superficial sore are favourable to the growth and multiplication of the diphtheria bacillus; also that when there is a source of irritation in the nose, whether produced by picking by a foreign body or otherwise, similar favourable cultural conditions are produced. It follows that nasal diphtheria should never be accepted as a primary condition until all sources of irritation are excluded.

I am, Sir, yours faithfully,

DUNCAN FORBES,
May 8th, 1922. Medical Officer of Health, Brighton.

LETHAL X RAY DOSE FOR ANIMAL TUMOURS.

To the Editor of THE LANCET.

SIR,—In some letters from Dr. J. C. Mottram, Dr. J. H. D. Webster, and others, which have appeared recently in THE LANCET, my experiments on the lethal dose of X ray for animal tumours have been referred to. Dr. Mottram quotes from some general remarks which I made in a discussion, and, since the details of the work have not yet been published owing to the large amount of time required to obtain final figures, I believe that further information concerning the points brought up may be of interest to your readers.

Dr. Mottram is quite justified in making the statement that animal as well as human tumours cannot be summarily treated with a "carcinoma" or a "sarcoma" dose, as tumours of the same morphology show great variations in susceptibility to X rays and radium. Dr. Webster's criticism of my experiments on the ground that I ignored scattered radiation is not wholly justified. On the contrary, I paid a great deal of attention to scattered radiation and its effect on the lethal dose for animal tumours, as is shown by the following results. When the tumour was exposed suspended in mid-air on thin gauze or dental rubber at a considerable distance from any solid material so as to eliminate all scattered radiation, there was obtained what may be called a pure lethal dose; this was 75 minutes in a given set of experiments. When the tumour was placed on the surface of water, 30 cm. deep, the conditions being otherwise exactly the same, the time required was 60 minutes; in other words, scattering increased the lethal effect approximately 20 per cent. When the tumour was placed in a shallow glass chamber on top of a wooden table, the dose required was the same. When it was placed on a disc of paraffin, 8 cm. thick, the time required was about 50 minutes, or slightly less than when the tumour was placed on top of water. When the tumour was placed between two blocks of paraffin of given thickness or immersed in a tank of water at a given depth, the dose of X ray required to kill could be computed quite accurately from the non-scatter dose by the use of Dessauer's depth dose curves.

The erythema dose in the experiments just mentioned is approximately 15 minutes, computed from an average of various erythemas produced on patients. This erythema is very light, just a slight reddening of the skin of the thorax after a week or ten days. The difficult part of the problem is to convert the lethal tumour dosage into erythema dosage, since there is no agreement as to exactly what an erythema dose is. The killing points of the animal tumours so far tested are much more constant than is a skin erythema in a human being.

The dose required to kill all the cells of mouse tumour 180 without any scattered rays is five skin erythemas. A comparison between the times required

in two slightly different experiments illustrates very well the marked effect of scattering. When the tumour was placed under 10 cm. of paraffin with a lead screen in which there was an opening 10 cm. square on top of the wax, nine hours' exposure was required to kill all the cells, or 15 erythema doses on the skin. When a second block of paraffin was put under the tumour, the other being left above, the exposure required fell to about five hours, or some nine erythema doses on the skin. In applying these findings to the treatment of human tumours it must be remembered that the animal tumour on which these doses were measured is highly malignant and rapidly growing. In its biology it corresponds to the most active type of human sarcoma, a type which no one working with either radium or X ray has, so far as I am aware, made any claim to cure.

In determining the lethal dose of animal tumours we must kill all the cells, because we know that if one or two of the cells are left they are capable of growing. No one has ever proved that all the cells of a human tumour can be killed by a beam of X ray. I have seen, and others also, the total destruction, as far as could be determined by the study of serial sections, of all the cancer cells within a radius of 2 cm. in a carcinoma of the cervix after the application of large quantities of radium; but here the destructive action close to the tube is so intense that 20 or 30 erythema doses must have been applied. Unfortunately, in some of these instances the patients died shortly afterwards from recurrences from cells just out of range of the rays. Until the dose which is necessary to kill all the cells of a human tumour can be computed, those who believe that these animal tumours are more resistant than human tumours have no case in court. There is no doubt that extraordinary clinical benefit can be obtained from doses far lower than those here considered. Every experienced operator has seen a carcinoma regress for a time after the application of an erythema dose, but has also seen the same tumour return several years after regression, showing that not all the cells were dead. There is another important lesson to be learned from these animal tumour experiments, and that is that it is necessary to be exceedingly cautious in assuming that because a tumour disappears for a time it is necessarily cured. As the lethal dose of these animal tumours is approached their reappearance on inoculation is greatly delayed. A tumour normally growing to a considerable size in a week may not appear for two or three months, a period of time equivalent to four or five years in a human being. A considerable time must, therefore, elapse before the permanent cure of a human tumour by high voltage radiation can be assumed.

I am, Sir, yours faithfully,

FRANCIS CARTER WOOD,
Director, Institute of Cancer Research,
April 27th, 1922. Columbia University, New York.

THE ERECT POSTURE.

To the Editor of THE LANCET.

SIR,—In reply to Dr. Harry Campbell's letter in your issue of Feb. 11th I acknowledge that my theory regarding the liability of the pulmonary apices to be compressed by the ribs requires a considerable amount of further testing, but I hold there is post-mortem evidence of a definite tendency on the part of the lung apices to collapse or semi-collapse, these portions of most lungs being slightly firmer and less aerated than the lower parts. This can be corroborated in the living subject: (1) by the higher pitched and more solid percussion note at the apices than lower down, even when light percussion only is used, so as to avoid any effects due to the different thicknesses of lung involved; (2) by the louder vesicular breath sounds lower down than at the apices, and the corresponding diminution of vocal fremitus and resonance; (3) by inspecting the breath movements, which are certainly more marked and extensive the lower down in the chest one observes, except perhaps in women who support the thoracic cage upon corsets and thereby limit the action of the diaphragm and so stimulate the respiratory centre to increased action of the intercostals, &c. The post-mortem rib markings are more pronounced of the first two ribs than of the lower ones. The fact that the cervical opening of the thorax is oblique in man, instead of transverse as it is in quadrupeds and monkeys, lends support to my contention.

It is quite true that, as Dr. Campbell says, "the inspiratory muscles attached to the upper part of the chest are at great pains to keep the lungs expanded," and this is demonstrated by the manner in which the anterior muscles of the neck (sterno cleido mastoids, scaleni, &c.) stand out especially in strong men as contrasted with women in whom the weight of the thoracic cage is relieved by corsets; but gravity may in some cases be more than a match for these muscles, gravity not only in the weight of the thoracic cage itself, accentuated by the drag of the abdominal muscles in their efforts to retain the abdominal contents, but also in the weight of the whole pectoral girdle with its attached upper limbs. There can be no reasonable doubt whatever that this effect is one of the most important contributory causes of phthisis, for not only is the aeration of the upper part of the lung seriously interfered with, but, what is far more important, the vascular supply is reduced to a fraction of the normal by the more or less continuous collapse, and in some cases even compression, of this part of the organ, instead of the normal rhythmical contraction and dilatation. Thus, it is highly desirable in those people who may have a tendency to apical phthisis that the muscles of the neck and shoulders should be well developed to fit them for the increased work of the erect posture, and one of the most suitable exercises for this purpose is that of hanging by the upper limbs in the manner of our ape ancestors, for not only does it produce the necessary development, but, by taking the weight of the pectoral girdle and its attached limbs from the upper ribs and substituting therefor the upward and outward pull of the muscles attaching the upper limbs to the thorax, it causes the desired expansion. The great value of recumbency for this affection is also indicated.

With regard to the second point which Dr. Campbell raised, the question as to whether the cerebral arterioles are or are not supplied with effective vasocontractors and vasodilators as in other parts of the body, I understand they are not, for that is the teaching not only of Dr. Leonard Hill but also of most other physiologists, both present and past.

I am, Sir, yours faithfully,

Liverpool, May 3rd, 1922. J. KNOX THOMPSON.

ARSENICAL POISONING.

To the Editor of THE LANCET.

SIR,—The letter of Dr. Chalmers Watson in THE LANCET of April 22nd is interesting and important as a reminder of the slow excretion of arsenic after its medicinal administration. In view of several cases within the last few years of criminal arsenical poisoning, I believe the attitude of the medical profession may undergo a change in view of some new facts. During the last 15 years the salvarsan compounds have been extensively used as the overture to the treatment of syphilis; their value depends, of course, on their arsenic which is combined with benzene. In the early years a large number of deaths followed the intravenous injection of those compounds. These deaths were due to acute arsenical poisoning. Modifications of the arsenobenzene combination have been tried and the mortality in recent years from salvarsan treatment has been considerably reduced, though it is not yet abolished.

In THE LANCET of Dec. 17th, 1921, p. 1273, there is a valuable and striking article by Dr. D. R. C. Shepherd and Major Elliot on a case of delayed neo-salvarsan poisoning. In this case salvarsan in known dosage was followed by death

more than three months after the last injection. Post mortem the signs of arsenic poisoning were found and the chemical analysis is also given showing the amount of arsenic detected in the viscera—which are usually tested in arsenical poisoning cases. It is important in the case cited that the patient only reported sick 14 days before death.

Excretion of Arsenic.—It has long been known that arsenic administered in mineral form (e.g., Fowler's solution or pills) is liable to show cumulative signs in the patient. In the Manchester beer poisoning epidemic small quantities of arsenic had accidentally become an ingredient of the beer. There were very numerous sufferers from chronic arsenical poisoning and, I believe, a few fatal cases.

The legitimate question arises as to how rapidly arsenic medicinally administered is likely to be excreted. Crystallising this we may inquire whether a dead person, who had received medicinal doses of arsenic up to a few months before death, would or would not probably be found to have appreciable quantities of arsenic in the viscera. I take it the prevalent medical view is that where two grains or more of arsenic is found in the organs this points to a poisonous dose having been given during life and within a few days before death. If, however, the rate of excretion of mineral arsenic is unknown and if there has been its recent medicinal administration, then it is unsafe to assume that all the arsenic found by analysis represents the residue of a poisonous dose criminally conveyed to the victim shortly before death.

I am, Sir, yours faithfully.

May 3rd, 1922. CHARLES RUSS, M.B., M.R.C.S.

PREVENTION OF SCARLET FEVER.

To the Editor of THE LANCET.

SIR,—Your readers have to thank you for the leading article on this subject in your issue of April 22nd.

Those with first-hand experience of scarlatina in hospital and in private practice have been for many years agreed that the possibility of transmission through desquamation is an almost negligible quantity, but that the risk from contamination by the discharges from mouth, nose, and ears is real. In other words, prevent these discharges from reaching the uninfected, and no spread occurs. This I hold may quite easily and safely be done in private, given a trustworthy attendant, and suitable housing. As an illustration of what may be done under duress of circumstances—although I did not, and do not, advocate such extreme hazards—I may tell you that in the old days, when hospital accommodation was limited, I have again and again treated without spread, a case of scarlatina in a two-roomed house in a tenement, the patient occupying one room with the attendant (separate beds), the father and rest of family occupying the other room, the attendant cooking, &c., for all. All infected cups, spoons, &c., were placed in boiling water immediately after use, rags used as handkerchiefs burned, and the admonition was repeated at each visit, that as scarlet fever enters the uninfected largely through the mouth, it was incumbent on the attendant to prevent such happening to the other members of the household. Nor were these cases of the mild form seen nowadays. Forty years ago symptoms were more severe, and mortality much greater. What has caused this change is a matter of opinion. Personally I think the advance in sanitation should claim the major credit since in the past the worst cases, whether in slum or suburb, were associated with defective drains. While it may well be that the virus has become attenuated in its passage through a population, whose successive generations have been subjected to the infection, it is all to the good that the said population possesses the advantage of concurrent improved sanitation.

I am, Sir, yours faithfully,

J. ALLAN GRAY, M.A., M.D., F.R.C.P. Edin.

Leith, April 29th, 1922.

BIRTH CONTROL CONFERENCE IN LONDON.

To the Editor of THE LANCET.

SIR,—Up to the present the question of family limitation has not received the attention which it merits from the medical profession. Almost all medical practitioners will agree that some form of birth control is justifiable, and even desirable, under certain conditions; but so far they have devoted little care to the subject, and especially to the consideration and improvement of contraceptive technique.

An international conference dealing with the various aspects of the subject will be held in London next July, 11th to 14th. Friday, July 14th, will be devoted to the medical and contraceptive sections, the latter of which will be open only to medical practitioners and students. The fee for membership of the conference is 10*s.*, but medical men and women can become *honorary* members by applying to the medical secretary. Any of them willing to contribute papers are invited to communicate with us. The Presidents of the other sections are: Prof. MacBride (eugenics), Prof. J. M. Keynes (economics), Mr. Harold Cox (national and international aspects), and the Rev. Gordon Lang (moral and religious aspects).

We are, Sir, yours faithfully,

G. ARCHDALL REID,
President, Medical Section.
NORMAN HAIRE,
President, Contraceptive Section.

71, Harley-st., W. 1, May 8th. B. DUNLOP, Med. Sec.

INFLUENZA AND EMPHYSEMA.

To the Editor of THE LANCET.

SIR,—The case reported by Colonel J. D. T. Reckitt in THE LANCET of April 29th recalls to my mind a somewhat similar case, which came under my care whilst I was attached to the naval staff in the West Indies. A sub-lieutenant, aged 26, a plethoric man, in ill-condition, on July 9th, 1917, developed influenza, and on the 12th he showed signs of bronchopneumonia. On the 23rd his temperature was normal and his physical signs appeared to be normal. He felt quite well, but was troubled with a distressing cough. On the 25th he suddenly developed subcutaneous emphysema whilst in a fit of coughing. He stated that he felt something give way. The emphysema began in the neck, spread rapidly to the face, and in the end of 24 hours was all over his chest and arms. His appearance was like that of the Michelin tyre advertisement and was so uncanny that his fellow officers (of whom the most were convalescing from influenza) objected to his presence. The poor fellow felt this so much that he showed signs of suicidal tendencies and taxed my already overworked staff by necessitating a continual watch being kept over him. Eventually I was able to land him at Jamaica, where he assumed his normal dimensions and peace of mind.

I am, Sir, yours faithfully,

Westcott, May 2nd, 1922. H. C. BILLINGS.

TRICOCEPHALUS DISPAR.

To the Editor of THE LANCET.

SIR,—In your issue of April 22nd (p. 823) Dr. H. A. Lediard inquires for a method of finding *Tricocephalus dispar*. As this nematode fixes itself very firmly in the mucosa of the cæcum, it is only expelled when dead, or after a vermifuge has been given. The fæces should be placed in a black enamel dish (such as those used for photography) and a little water added. On stirring gently to disintegrate the fæces the white thread-like worm can be easily distinguished. This is the method employed by Prof. Dr. O. Fuhrmann, of the University of Neuchâtel. For finding the eggs, Prof. Fuhrmann uses the following method: To a small quantity of the fæces add a few c.cm. of a 20 per cent. solution of HCl and shake well. Then add a little ether, shake and centrifuge. The eggs alone will be deposited, and there is no odour whatever.

I am, Sir, yours faithfully, JEAN G. BAER.

Université de Neuchâtel, Switzerland, April 24th, 1922.

Obituary.

JAMES MIDDLEMASS, M.A., B.Sc., M.D. EDIN., F.R.C.P. EDIN.

THE death of Dr. James Middlemass, medical superintendent of the Borough Mental Hospital at Ryhope, Sunderland, is a serious loss to psychological medicine and the whole profession, since his work was in no sense confined to psychiatry. Born in Edinburgh 59 years ago, he had a promising career as a student, graduating first M.A., B.Sc., and later, deciding to adopt medicine as a career, taking the M.B., C.M. with honours in 1888. He subsequently became F.R.C.P. Edin. in 1896 and M.D. Edin. in 1898. On qualification he was appointed resident physician to the Royal Infirmary, Edinburgh, and later pathologist at that institution; after this he took a temporary post as pathologist at the Royal Asylum, Morningside, where he came under the influence of Sir Thomas Clouston and decided seriously to adopt psychological medicine as a career. In due course he became senior assistant at Morningside, and in 1898 was appointed medical superintendent of the Sunderland Borough Asylum at Ryhope.

Dr. Middlemass contributed to various medical journals many articles, mainly on neuro-pathology, and he also wrote jointly with his brother-in-law, Dr. Elkin, an important article on Night Nursing in Asylums, published in the *Journal of Mental Science* in 1899. Here he showed to what extent it was possible, by means of careful nursing, to prevent noise and disturbance at night; he found that contentment and good order could be attained if patients were nursed under observation instead of being isolated in single rooms. Latterly Dr. Middlemass assisted in preparing the Handbook of Mental Nursing published by the Medico-Psychological Association. He was an active member of the Committee recently engaged in re-writing the handbook, and, though the names of the writers of the sections are not published, it is known that the assistance of Dr. Middlemass in this work was recognised by the Committee to be of the utmost value. Through his contributions, anonymous though they may be, to the handbook, his influence will be felt by many future generations of mental nurses. As lecturer on mental diseases at the Newcastle Medical School Dr. Middlemass was clear and impressive and his teaching was much appreciated by the students. With regard to his main work as superintendent of the Borough Asylum, he enjoyed the confidence of the Committee to a rare degree and was beloved by his staff.

Dr. Middlemass in manner was quiet, cautious, and reserved, but held very decided opinions and firm religious convictions. His local influence among his colleagues was considerable. He was twice President of the Sunderland Branch of the B.M.A., and chairman of the Local Medical War Committee, where his tact and ability to obtain a decision without loss of time proved of great value during a difficult period.

Dr. Middlemass was a good athlete and excelled at most games. His interests were wide, including the study of modern languages and of music. Dr. Middlemass spent himself for others in no ordinary way, and the large attendance at the memorial service held at Ryhope parish church on May 5th was a tribute to the respect and affection in which he was held. He leaves a widow, a son, and daughter.

GUSTAV HAMEL, M.D. BERNE, M.R.C.S., L.R.C.P. LOND., M.V.O.

ON May 3rd Dr. Gustav Hamel died suddenly at Surbiton at the age of 61. Dr. Hamel received his early education in Sweden and continued his studies in Switzerland, graduating M.D. at Berne in 1888. About 25 years ago he came to England and qualified M.R.C.S., L.R.C.P. from St. Bartholomew's Hospital in 1903. Since then he has been the principal if not the only exponent in this country of the treatment originated in 1857 by Dr. Gustav Zander, a Swedish physician, who substituted mechanical appliances for the manual exercises of the Ling system, and he himself devised many mechanical appliances based on this system of mechano-therapy. The appliances used in Dr. Hamel's consulting rooms at Stratford-place were so constructed that the joints and limbs of the body could be exercised, the patient playing a passive rôle. Other machines were designed for patients in need of active exercise while preferring a sedentary life; an electric horse, for example, gave equestrian exercise graduated to any desired degree. The Zander method is thus used not only in orthopædic work but also in the treatment of constitutional disorders such as gout, diabetes, rheumatism, asthma, obesity, and so forth. Dr. Hamel's publications included articles on this treatment and on massage, radiant heat and hot air in the system of treatment by Latham and English, published in 1912, and on the physical treatment of war injuries in the *Hospital* in 1916. King Edward VII. was a patient of Dr. Hamel for some years, both in London and in Homburg.

Dr. Hamel had many interests outside his work. He loved travel and was an ardent motorist and usually spent week-ends at his house in Surbiton. The last few years of his life were saddened by the tragic loss of his only son, the airman who bore his name, in 1914. Dr. Hamel leaves a widow and three daughters, of whom one, Dr. Magda Hamel, qualified from St. Mary's Hospital in 1918.

The Services.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt. Col. T. C. MacKenzie is placed on the half-pay list on account of ill-health.

Maj. J. L. Wood relinquishes the temp. rank of Lt.-Col.

Capt. B. H. C. Lea-Wilson is seed. for service with the Egyptian Army.

Lt. (temp. Capt.) F. Holmes to be Capt.

The undermentioned relinquish their commns.: Temp. Lt.-Col. W. H. W. Elliot (retains the rank of Lt.-Col.); Temp. Majs. J. F. Carruthers and F. E. Feilden (retain the rank of Maj.): Temp. Capt. F. C. Fawcett (retains the rank of Capt.).

ARMY DENTAL CORPS.

Lt. (temp. Capt.) C. H. Pywell to be Capt.

ARMY RESERVE OF OFFICERS.

Maj. F. J. W. Porter, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

TERRITORIAL FORCE.

Majs. W. B. Milbanke, T. J. Faulder, and V. Howard, having attained the age limit, are retired and retain the rank of Maj.

Capts. H. J. Gorrie and T. H. C. Derham to be Majs.

Majs. H. D. Smart (late R.A.M.C.) and R. O. Ward (late H.A.C.) to be Capts. and relinquish the rank of Maj.

Capt. R. K. Mallam to be Adjt. of the R.A.M.C. Schl. of Inst., E. Angl. Divn. (T.A.).

Capt. C. W. T. Baldwin is restored to the estabt. on ceasing to hold a temp. commn. in the R.A.F.

Capt. J. M. Postlethwaite resigns his commn. and retains the rank of Capt.

Capt. W. G. Rutherford, having attained the age limit, is retired and retains the rank of Capt.

Capt. A. Griffith, having attained the age limit, is retired and is granted the rank of Maj.

Lt. M. D. Mackenzie to be seconded.

Officers relinquishing their commns. and retaining their rank except where otherwise stated: Lt.-Cols. H. G. Parker, W. R. Matthews, R. S. Taylor, and A. G. Gullan; Maj. E. U. Bartholomew; Capts. M. I. Dick, N. H. H. Haskins (granted the rank of Maj.), A. W. Havard, F. G. Prestwick, J. F. Roberts, E. W. Reed, W. J. Reid, F. S. Bedale, W. Calverley, W. J. Cowan, A. M. Gibson, O. H. Blacklay, W. R. Douglas, J. R. Jagger, J. H. Mather, W. E. Rothwell, B. Robertshaw, and O. H. Williams (granted the rank of Maj.).

Sanitary Cos.: Capt. J. Y. Scott (late R.S.Fus.), to be Lt., and relinquishes the rank of Capt.

TERRITORIAL ARMY RESERVE.

Maj. J. D. Wells, from Genl. List, to be Maj.

Capt. W. J. Wilkinson, from Genl. List, to be Capt.

INDIA AND THE INDIAN MEDICAL SERVICE.

The King has approved of the relinquishment of the temporary commission of Capts Jamshed Kharshed Dastoor, who retains the rank of Capt., and of Noormahomed Kasembhai Chohan.

Lieut.-Col. O. A. Sprawson, C.I.E., Principal, King George's Medical College, Lucknow, has proceeded on long leave; Maj. J. F. Boyd, civil surgeon of Benares, has been granted privilege leave combined with study leave for seven months; Maj. S. W. Jones, on return from leave, has been appointed Superintendent of Central Prison; and Lieut.-Col. O. St. John Moses has been appointed temporarily to act as Police Surgeon, Calcutta. Lieut.-Col. J. B. Christian, civil surgeon, has been transferred from Chittagong to Darjeeling; Dr. C. Strickland has been appointed Professor, School of Tropical Medicine and Hygiene, Calcutta; and Col. R. Heard, Assistant Director of Medical Services, has been appointed Inspector-General of Civil Hospitals and Prisons, Assam. Capt. H. L. Batra, officiating civil surgeon, Naga Hills, has been transferred to Kamcup district; and Lieut.-Col. W. H. Tucker, on return from leave, has been attached to the Government Ophthalmic Hospital, Madras, pending his appointment as Special Medical Officer, Mophlah Camp Jail, Bellary. Dr. E. H. Hankin, chemical examiner to the Governments of the United and Central Provinces, has retired after 30 years' service. It is understood that Dr. Hankin's successor will be an Indian with European qualifications. Maj. C. A. Godson, civil surgeon, Murshidabad, has been appointed to act as Superintendent, Central Lunatic Asylum, Berhampore, in addition to his own duties. The new Governor of Bengal, Lord Lytton, has appointed Maj. E. H. V. Hodge as Surgeon to His Excellency.

Medical News.

UNIVERSITY OF CAMBRIDGE.—At a Congregation held on May 6th the degrees of M.B. and B.Ch. were conferred on G. S. Trower, King's, and H. W. Leatham, Trinity.

UNIVERSITY OF LONDON: LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.—Fifteen medical entrance scholarships and exhibitions of an aggregate total value of about £1300, tenable in the Faculty of Medical Sciences of University College and King's College, and in the medical schools of Westminster Hospital, King's College Hospital, University College Hospital, the London (R.F.H.) School of Medicine for Women, and the London Hospital, will be offered for competition on Tuesday, June 27th. Full particulars and entry forms may be obtained from the secretary of the board, Mr. S. C. Ranner, the Medical School, King's College Hospital, Denmark-hill, London, S.E. 5.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification Examination:—

FINAL EXAMINATION.

Robert Willan Paylor Hall, Oswald Otto Popper, Henry Camrass, Andries Johannes Lubbe, Thomas Kay Maclachlan, Gabriel Geoffrey King, Marguerite Martha Isobel Swanson, Charles Marshall Thompson, Donald Macdonald, William Muirhead Reid, William Raymond Dupre, Alexander Wilson Buchan, William Arthur M'Kee Gibson, Clement Ernest Wilfred Mendis, Isobel Reid, Frederick Placidus Lisboa-Pinto, Maxwell Adams M'Vey, Saloman Ho Asjoe, Charles Tampoe Williams.

Medicine.—Louis Feldman, John E. Overstead, Leslie I. Myerson, Andrew A. Dewar, Arthur K. Tateson, Agnes T. Martin, Herman S. Menko, and Morris Witkin.

Surgery.—Bernard M'Laughlin and Lilian M. Williams.

Midwifery.—John Waiggowsky, T. T. Hoskins, Arthur K. Tateson, Andrew A. Dewar, Morris Witkin, Henry G. Triay, Louis Feldman, Edward L. Ewan, and Lilian M. Williams.

Medical Jurisprudence.—Wilhelmina C. Storrie, George F. Maher, Oliver H. D. Oliver, James M. M'Lintock, James H. Murrell, Robert R. Anderson, Alexander L. Tinto, Saros A. D. Naoroji, Ronald M. MacKinnon, Annie D. Allan, Kamailal Palit, and Akinlawan Adefolu.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the College was held in the Physician's Hall on May 2nd, Sir Robert Philip, President, in the chair. Dr. Alexander Gibson Henderson was admitted a Fellow of the College. Drs. George Williamson, Alan Leonard Smith Tuke, James Bertie Simpson, David Ruskie, John Johnstone Wilson, and William Edward Foggie were admitted Members of the College. The Lister Fellowship, of the value of £100, was awarded to Dr. Hedley Duncan Wright.

Sir Joseph Fayrer, on behalf of the officers of the 2nd Scottish General Hospital, presented to the College a silver bowl in commemoration of the services rendered by its Fellows during the late war. Dr. Thomas W. Dewar presented to the College an apothecary's balance which had been the property of Prince Charlie. The College unanimously resolved to offer its Honorary Fellowship to Prof. Albert Calmette, of the Pasteur Institute, Paris, on account of his distinguished services to medical science.

HARVEIAN SOCIETY.—A clinical meeting will be held on Thursday, May 18th, at 4.30 P.M., at the Paddington Infirmary, Harrow-road, W.

ABERDEEN UNIVERSITY CLUB, LONDON.—The club is holding its bi-annual dinner on Thursday, May 18th, at Gatti's Restaurant. Dr. W. A. Milligan, hon. sec., 11, Upper Brook-street, W. 1, will be glad to hear from any members wishing to be present and also from past or present graduates, men or women, wishing to join the club.

GLASGOW UNIVERSITY CLUB, LONDON: ANNUAL DINNER.—This club holds its annual summer dinner on Friday, May 26th, at the Trocadero Restaurant, Piccadilly, at 7.15 for 7.30 P.M. precisely. Sir Archibald Denny, LL.D., is to preside. Glasgow University men who desire to attend are requested to communicate as soon as possible with the hon. secretaries, 1, Harley-place, London, N.W. 1.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A course of six practical demonstrations on gastro-intestinal affections in children, skin diseases, the Wassermann reaction and its importance in general practice, will be given at the children's clinic, Western General Dispensary, on Mondays and Thursdays at 4.45 P.M., commencing on May 15th. The fee for the course is one guinea. Application for copies of the syllabus and tickets should be made to the secretary to the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

THE annual meeting of the Royal Association in aid of the Deaf and Dumb will be held at the Mansion House, London, on Monday, May 15th, at 3 P.M. The Right Hon. the Lord Mayor will preside. The speakers will be His Grace the Archbishop of Canterbury, the Rev. R. J. Campbell, D.D., Sir Ernest E. Wild, K.C., M.P., the Right Rev. the Lord Bishop of Croydon (chairman of committee), and Mr. F. T. Barrington-Ward, K.C. Further information or tickets may be obtained from the secretary, 419, Oxford-street, London, W. 1.

ROYAL INSTITUTE OF PUBLIC HEALTH.—A course of three lectures on Port Sanitation will be delivered by Dr. W. M. Willoughby at this Institute, 37, Russell-square, London, W.C. 1, on May 12th, 19th, and 26th, at 4 P.M. No tickets of admission are required. In connexion with the congress to be held at Plymouth from May 31st to June 5th, which was announced last week, special facilities have been granted whereby health visitors and others specially interested in the work of the women's section may participate in that section at a reduced fee of 5*s*. Intending delegates are advised to secure accommodation without delay.

ASSOCIATION OF ECONOMIC BIOLOGISTS.—A general meeting will be held at 2.30 P.M., on May 19th, in the Botanical Lecture Theatre of the Imperial College of Science, South Kensington, London, S.W. 7. Mr. Wilfred Rushton will read a paper entitled Further Contributions to the Biology of Freshwater Fishes, and Prof. J. H. Priestley will give a demonstration on the Toxic Action of Illuminating Gas on Plants. The annual field meeting of the Association will be held on June 30th in the Royal Horticultural Society's Gardens, Wisley. Further details will be announced later.

ROYAL INSTITUTION OF GREAT BRITAIN.—Sir William Bragg, F.R.S., will deliver the Friday evening discourse on May 19th, at 9 o'clock, on the Structure of Organic Crystals. The following afternoon lectures, at 3 o'clock, are to be given: Tuesday, May 16th, Tyndall's Biological Researches and the Foundations of Bacteriology (Tyndall Lectures, Lecture I.), by Dr. William Bulloch, F.R.S.; Thursday, May 18th, Plant Sensitiveness (Lecture II., To Contact and to Chemical Stimulation), by Prof. F. Keeble, F.R.S.; Saturday, May 20th, the Disappearing Gap Between the X Ray and Ultra-violet Spectra (Lecture II., Photo-Electric Methods), by Prof. O. W. Richardson, F.R.S.

LADIES' MEDICAL GOLFING SOCIETY.—The spring meeting was held at Porter's Park Golf Club, Radlett, on May 5th under difficult weather conditions. The "Canny Ryall" challenge cup for the best net return was awarded to Lady Ryall (100−16=84). Miss Cecil Leitch won the scratch prize with a score of 85; Lady Briscoe the senior handicap prize with 103−17=86, and Miss Beatty Smyth the junior handicap prize with 106−21=85. In the afternoon Lady Briscoe and Mrs. Lewis Smith won the foursomes *v.* bogey competition with a score of 4 down. The course was in excellent order and the meeting was very successful.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting will be held to-day, Friday, May 12th, at 8.45 P.M., at the Miller General Hospital, Greenwich, when Dr. C. T. T. Comber will give his presidential address.

THE Cavendish lecture of the West London Medico-Chirurgical Society will be delivered on June 13th, at 8.15 P.M., at the Kensington Town Hall by Prof. Harvey Cushing on the Meningiomas (Dural Endotheliomas): Their Source and Favoured Seats of Origin.

LONDON HOSPITAL MEDICAL COLLEGE.—A special course of six lectures on advanced surgery will be given on Fridays, at 4.15 P.M., in the clinical theatre of the hospital, beginning to-day (May 12th), when Mr. Russell Howard will give the first of two lectures on Acute Intestinal Obstruction. Details of subsequent lectures by Sir Hugh Rigby, Mr. Robert Milne, and Mr. Hugh Lett will be announced in our Medical Diary.

ROWETT INSTITUTE, CRAIBSTONE, ABERDEEN.—Mr. William Godden, B.Sc., A.R.C.S., F.C.I., at present in charge of the agricultural chemical work in the University of Leeds, has been appointed head of the Biochemical Department in this institute in succession to Prof. R. H. A. Plimmer. Dr. H. E. MacGee has been appointed physiologist, and Mr. J. P. McGowan bacteriologist and pathologist.

CENTRAL DISCHARGED PRISONERS' AID SOCIETY.—The Treasurer and Benchers of the Middle Temple have granted this society the use of their hall for a meeting, at 4.30 P.M., on Empire Day, Wednesday, May 24th. The object of the meeting is to give those interested an opportunity of hearing judges and others engaged in the administration of justice speak on the subject of discharged prisoners, and also to enable the society to make better known its aims. It is hoped that members of both branches of the legal profession will attend and also members of Discharged Prisoners' Aid Societies and others who take part in reclamation work. Communications to be addressed to Mr. W. W. Jemmett, secretary, 14, King William-street, Strand, W.C.2.

TAVISTOCK CLINIC FOR FUNCTIONAL NERVE CASES.—A course of six lectures on Psychology and Neurology will be given at 51, Tavistock-square, W.C., by Dr. E. W. N. Hobhouse on Fridays, beginning to-day (May 12th), at 5.15 P.M. The subjects will be briefly as follows: Aspects of Nervous Disease; Mechanisms of Instinct and Habit; Conditioned Reflexes in Animals; Conditioned Reflexes in Man; the Sympathetic and Endocrine Systems; Factors in Disturbance of Behaviour. A course of six lectures on Mental Deficiency will be given by Dr. W. A. Potts on Mondays, beginning May 15th, at 5.15 P.M. The subjects will be: General Introduction; Classification of the Various Forms and Grades, and Clinical Types; Moral Imbeciles; Diagnosis; Mental Tests; Certification under the Mental Deficiency Act (1913), Education and other Means of Treatment. The fee for each course will be £1 1s. Tickets can be obtained in advance from the hon. secretary at the clinic.

THE REVISION OF THE INSURANCE ACTS.—Before the Lancashire County Local Medical and Panel Committees Dr. H. F. Oldham, the chairman, placed the following resolutions which were unanimously adopted:—

1. That the Insurance Acts Committee be instructed to take all possible steps to obtain the appointment of a Royal Commission with reference, "To review the whole working, administration, and finance of the National Health Insurance Acts of 1911, 1913, 1918, and 1920, and report thereon."
2. That the Insurance Acts Committee be instructed to explore every possible avenue that might lead to the consolidation of all National Health Insurance under one State-controlled body, preferably the Ministry of Health, by whom alone, and through whom alone, all benefits should be dispensed.
3. That in the opinion of this Conference National Health Insurance would be more efficient and more beneficial, the service more attractive and of a higher standard, and the administration more economical if the present system of deposit contributors were extended to embrace all insured persons and the financial arrangements for deposit contributors so modified that the good lives should carry the bad.

Dr. Oldham rightly pointed out that the resolutions had called for a Royal Commission to carry them into effect, a departmental inquiry into the administration of medical benefit not being likely to lead to anything but a discussion of complaints from or against medical practitioners. The second resolution, it will be seen, is a unanimous vote in favour of a State service as an alternative to a service in which uncontrolled power is vested in the approved societies. Speaking to the third resolution, Dr. Oldham pointed out that deposit contributors will be placed in as good a position as members of any approved society if the insurance were made collective and not individual, the good lives carrying the bad. Under such a system, he pointed out, the accruing surplus would be in the hands of the State and available for extending benefits, while administration would be simplified and more economical.

IRISH MEDICAL ASSOCIATION.—Dr. W. O'Sullivan, of Killarney, has accepted nomination for the presidency of the Irish Medical Association, having completed two years as vice-president. Prof. F. C. Purser, of Dublin, has accepted nomination for the vice-presidency.

UNIVERSITY OF BRISTOL.—The courses of post-graduate demonstrations arranged by the University in the towns in its neighbourhood continue to develop. A successful course was held during the winter at the North Devon Infirmary, Barnstaple, and a further course is being held during June and July at the Trowbridge Cottage Hospital, constituting the second set of demonstrations held in the Trowbridge area. Each course consists of six demonstrations, held weekly, and the fee paid is two guineas. Other centres are considering the advisability of starting similar work.

SALARY OF M.O.H. FOR MANCHESTER.—At a meeting of the city council held on May 3rd, the town hall committee made the recommendation as to the salary of the M.O.H. recorded last week in our columns—that is, £1500 for the first two years, £1750 for the third and fourth, and £2000 for the fifth and subsequent years. After discussion an initial salary of £1700 was given fairly general support, and the Mayor intimated that the British Medical Association would accept this sum. In the end a decision was delayed until the next meeting of the council—a month hence. In the meantime the committee, having heard the opinion of members of the council, will reconsider the matter, and, it is hoped, will present a proposal which will command unanimous support.

UNIVERSITY OF LEEDS.—At a Congregation of the University held on May 4th the degree of D.Sc. *honoris causâ* was conferred upon Sir Harold Stiles. Dr. Jamieson, the Dean of the Faculty of Medicine, in presenting Sir Harold Stiles for his degree, referred to an ancient Greek epitaph on a foreigner written by Simonides: "I Brotachos of Gortyna, lie here, not having come for this, but on business." Sir Harold Stiles had come to Leeds for the business of a meeting of the Association of Surgeons of Great Britain and Ireland. Dr. Jamieson referred to the distinguished predecessors of Sir Harold Stiles as Regius professor of clinical surgery in the University of Edinburgh, and pointed out that "by virtue of his brilliant scholastic career, his contributions to surgical knowledge, and his great breadth of experience he can occupy this position without diffidence. His contributions to surgery have been characterised by faith in the value of the fundamental sciences as the basis of the art, and he has pursued his ideals with energy. It is a joy to be able to greet Sir Harold Stiles as a member of the University."

ASSOCIATION OF SURGEONS: MEETING IN LEEDS.—The third annual meeting of the Association of Surgeons of Great Britain and Ireland was held in Leeds from May 4th-6th, Sir Berkeley Moynihan presiding. It is generally known that the successful launching of the Association has been largely due to the enthusiasm and tact of Sir Berkeley Moynihan, and it was thus fitting that, after London and Edinburgh, where the first and second meetings were held, under the presidency respectively of Sir John Bland-Sutton and Sir Harold Stiles, Leeds should be chosen as the first provincial city to have the honour of welcoming the Association.

At the opening meeting at Leeds Sir Harold Stiles vacated the presidential chair and inducted his successor, Sir Berkeley Moynihan, who had a warm reception. Among those present it was pleasant to see Mr. T. Pridgin Teale, who will shortly celebrate his 91st birthday. The chief subjects which came up for discussion in the mornings were as follows: The early symptoms and signs of gall-stones; the association of gall-stones and pancreatitis; the choice between cholecystotomy and cholecystectomy; the surgery of the parathyroids; and operations on the spine for tuberculous disease. In the afternoons gall-stone and other operations were performed by members of the surgical staff of the infirmary. On Saturday morning a programme of demonstrations was arranged in the infirmary and in the physiological and pathological departments of the medical school. The meeting was well attended and enthusiastic, the whole resources of the Leeds surgical school being placed at its disposal. Fellows dined together at the Queen's Hotel on Friday evening. The toast of "The President" was proposed by Sir George Makins, and in his reply Sir Berkeley Moynihan paid a tribute to those whose work in the past had built up the reputation of Leeds surgery. To further the advance of the science of surgery it was decided to found a medal to be awarded for some outstanding contribution to surgery in any land. A scheme was sanctioned to provide financial assistance for the purposes of collective information or research in surgery, the operative treatment of carcinoma of the tongue being chosen as the first subject. The next meeting will be held in London in 1923, under the presidency of Mr. Raymond Johnson.

Dr. Redmond Roche has been elected president of the Society of Members of the Royal College of Surgeons of England in succession to the late Dr. J. Brindley-James.

IRISH HOSPITAL RESIGNATIONS.—Sir James Craig, President of the Royal College of Physicians of Ireland, and Sir William Taylor, have resigned their respective posts as consulting physician and consulting surgeon to the Dublin Skin and Cancer Hospital. Mr. H. E. MacAuley has resigned the position of assistant surgeon to the same institution.

GENERAL INFIRMARY AT LEEDS.—Following on the appointment of Mr. S. Daw to surgeon in charge of the orthopædic department, the vacancy on the assistant surgical staff has been filled by the appointment of Mr. E. R. Flint, F.R.C.S. Mr. Flint was a Leeds student and for some years was resident surgical officer at the infirmary.

PORTSMOUTH EYE AND EAR HOSPITAL.—A satisfactory year of progress was reported at the annual meeting of this institution held on May 4th. The work done had been much more extensive than in any previous year. 20,923 patients attended for advice and treatment and 2044 operations were performed. The balance-sheet showed a bank overdraft of £512.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received from an anonymous donor a gift of £100 towards clearing off a debt of £5000.—Public money bequests totalling nearly £30,000 have been left by the late Lady Ogilvie-Dalgleish, Errol Park, Perthshire, widow of Sir Thomas Ogilvie-Dalgleish, Bart., who had extensive interests in Dundee, and died a millionaire. Among the bequests are the following: Royal Infirmary, Dundee, and Institution for the Blind, each £4000; Sick Poor Nursing Society and Eye Institution, each £1000.—Mr. Isaac Holden, of Glossop, has left provision in his will for a trust to benefit the town and surrounding districts—the sum available for the objects of the trust will be about £150,000. The scope of the trust, amongst many other matters, includes the support of child welfare schemes and maternity homes.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE. Special arrangements for the summer session, Monday, May 8th, to Saturday, July 15th, have been made as follows: The fee for attendance on the hospital practice, including all ordinary lectures and demonstrations, is 4½ guineas for one month, 6 guineas for six months, and 9 guineas for three months. During the course there will be lectures on Surgical Pathology by the surgical registrar, on Surgical Diseases of the Abdomen, by Mr. N. F. Sinclair; on Diseases of the Heart, by Dr. Scott Pinchin: and on Applied Pathology, by Dr. J. Burnford. Demonstrations of cases will be held in the medical wards by the medical registrar; demonstrations will also be held by Mr. S. G. Macdonald (Cystoscopy), Mr. B. S. Simmonds (Fractures and Application of Splints, and cases in the surgical wards), Dr. H. J. F. Simson (Gynæcological), and Dr. Burnford (Pathological). Special classes will be formed for instruction in retinoscopy and ophthalmoscopy, diseases of the eye, nose, throat, and ear, diseases of children, gynæcology, gastro-intestinal surgery, venereal disease, medical bacteriology, vaccine therapy and radiography. Full information may be obtained from Dr. E. Arthur Saunders, Dean of the College, 37, Harley-street, London, W. 1.

COMPLAINT AGAINST A DUBLIN HOSPITAL.—At a recent meeting of the Dublin Corporation, one of the members complained of the difficulty experienced in obtaining admission for urgent cases to the city hospitals. He related the case of a woman, who, when approaching her confinement, broke her leg. Application was made to several of the hospitals, but no bed could be obtained. At 7 P.M. she was brought in an ambulance to the hospital nearest her residence, but admission was refused. Not till late at night were her friends able to get her a bed. A letter from the chairman of the hospital chiefly concerned has since been published. It expresses the view of the governors "that the hospital is unable, by reason of limited space, to accommodate all the patients who are anxious to avail themselves of the treatment it offers. The staff are, therefore, compelled to refuse admission to further patients when all the available beds are occupied." The chairman says that the friends of the patient concerned had twice been informed on the same day that no bed was available, and it was in face of this information they brought the patient to the hospital door. It is likely that the whole incident will be the subject of careful inquiry. It is hard to see how such occasional hardship to patients can be avoided while the hospital accommodation in Dublin is scattered among ten general and nearly as many special hospitals. The sooner the problem of amalgamation is faced, the better for the community as well as for medical service.

ISLINGTON DISPENSARY.—The 101st annual general meeting of subscribers was held at the dispensary on April 25th. The report for 1921 showed that 4434 patients attended during the year, and that 1435 patients were visited in their own homes. The average daily number of prescriptions dispensed was 168; the total number of dental cases treated was 456. The income for 1921 was £1136 11*s.* 7*d.*; the expenditure exceeded this sum by £83 1*s.* 8*d.*, and an appeal was made for new and increased subscriptions. The number of patients visited in their homes had increased by over a thousand. The Rev. H. W. Hinde, vicar of Islington (chairman), in moving the adoption of the report, remarked on the obvious appreciation by the neighbourhood of the work done by the dispensary staff.

DENTAL BOARD OF THE UNITED KINGDOM.—The second session of the Dental Board was opened on May 9th, at 44, Hallam-street, W., the Rt. Hon. F. D. Acland, M.P., being in the chair. Mr. Acland dealt in his chairman's address with the figures relating to applications for registration made under the regulations framed during the December session. Applications had been received from 6765 persons, of whom 4294 claimed to have been in practice for five of the past seven years; among the applications were 1551 from members of the Incorporated Dental Society, 423 from mechanics, 271 from persons in practice at the time of the passing of the Act, and 226 from chemists who claimed to have at the commencement of the Act a substantial dental practice. The claims of ex-Service men formed one of the most difficult matters for the Board's consideration; but the Board had come to the decision that if the period of an applicant's practice was less than five years the examination must be taken, but that allowance may be made in respect of fees and time-limit to these ex-Service men. After the appointment of committees, the Board proceeded to the consideration of disciplinary cases, of which there are 20 to be dealt with during the session. These are all cases of covering, and the decisions of the Board will be announced when the last case has been considered.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, MAY 3RD.

Sanatorium Treatment.

Mr. MILLS asked the Minister of Health the number of applications during the past 12 months for sanatorium treatment, the number of people admitted to such treatment, and the average waiting time between applications for treatment and treatment itself; and whether he could report any check in the growth of tuberculosis.—Sir A. MOND replied: The returns made to my department by the local authorities do not provide the precise information asked for in the first three parts of the question, but I am sending the hon. Member particulars of the numbers of persons receiving and awaiting treatment, respectively, in residential institutions from local authorities in England on the first day of each month from June 1st last. As regards the last part of the question, the numbers of notifications of, and deaths from, tuberculosis in 1919 and 1920 in England and Wales were considerably less than in the previous year. I am sending the hon. Member particulars of the annual notifications of, and deaths from, this disease.

Deaths from Starvation.

Mr. ROBERT RICHARDSON asked the Minister of Health whether, as five starvation deaths had been reported to him in 1920 from Durham and only one in Yorkshire, he would apply to the coroners of Durham for a full account of all the starvation deaths which had occurred in Durham for the years 1920 and 1921; whether he would cause his inspector to make careful inquiries and would publish a full report of the inquests and of the inspector's inquiries; whether he was aware that the statistics showed that the number of such deaths in Durham for some years before the war had been out of proportion to its population; that in one London union an enormous decrease of deaths occurred in consequence of the earnest endeavours of the guardians and their officers, and of their taking certain steps; whether his inspector had given any explanation of the numbers of these Durham deaths; whether he had made any endeavour to reduce them; if so, would he say what were the explanations and endeavours; whether he would give the numbers of the starvation deaths which had been reported to him for London, the provinces, and Northumberland, respectively, for the year 1920, so that the numbers might be compared with those of Durham; and what casual wards in Durham

were closed during the war and had not been re-opened.—Sir A. MOND replied: I am obtaining a special report on the deaths reported as caused by starvation or exposure in the year 1920 in the county of Durham. The number of such deaths in the same year were in London 4, in Northumberland none, and in the provinces as a whole 28. The only casual wards in the county which are now closed are the Durham and Auckland wards.

Voluntary Hospital Grants.

Mr. CHARLES EDWARDS asked the Minister of Health whether he had received any communications from the Royal Gwent Hospital, Newport, Monmouthshire, and similar institutions, protesting against the decision of the Voluntary Hospitals Commission, which had decided that grants to hospitals should be based on the income for the year ending December 31st, 1920, or the averages for the three years 1918, 1919, 1920; whether he was aware that for the year 1921, and the immediate following years, it would be impossible to show a similar income owing to reduced earnings of workers and others, which prevented them from subscribing to the same extent; and whether, in order that hospitals should derive some benefit from the £500,000 set aside by the Government, he would take steps to amend the terms and conditions so as to enable this to be done.—Sir A. MOND replied: I understand that representations in this sense have been made to the Voluntary Hospitals Commission by certain hospitals in South Wales. It was laid down by the Government as one of the fundamental conditions for grant that assistance should ordinarily be based on the amount of new money raised or in sight and the Commission have no power to vary this rule; but they may make emergency grants in cases where a hospital has exhausted its realisable assets and without assistance would be compelled to close beds.

Nurses and Unemployment Insurance.

Brigadier-General COLVIN asked the Minister of Health whether members of county nursing associations, whose employment was permanent and who had their own pension scheme, would be exempted from contributing to national unemployment insurance.—Sir MONTAGUE BARLOW (Parliamentary Secretary for Ministry of Labour) replied: Persons employed as female professional nurses for the sick are, as from July 1st next, excluded from unemployment insurance by the Unemployment Insurance Act recently passed. As regards the effect of this provision in particular cases, I would suggest that full details of these cases should be submitted to the department for consideration.

Analysis and Bacteriological Examination of Milk.

Mr. GRATTAN DOYLE asked the Minister of Health if any and, if so, what system of analysis of milk offered for public consumption was practised by the Ministry of Health; if such analysis had been in operation during the last six months; if so, where and with what results; was he aware that in the analysis and bacteriological examination of milk samples recently taken in the city of Newcastle-on-Tyne approximately 50 per cent. showed really serious pollution; and what steps he intended to take to counteract such serious menace to the health of the people.—Sir A. MOND replied: The analysis of milk is not undertaken by my department, but I am aware of the results stated in the recent reports of the medical officer of health for Newcastle. I am hoping to introduce legislation with a view to effecting a substantial improvement in the milk-supply of the country.

Children's Hip-Disease Hospital, Sevenoaks.

Sir HERBERT NIELD asked the Minister of Health whether his attention had been called to the case of the children's hospital at Sevenoaks for the treatment of hip disease, the work of which had been seriously diminished through the withdrawal by the Ministry of the approval of the institution for the treatment of children between the ages of 5 and 16 years, owing to the financial inability of the governing body to employ and pay two certificated teachers to instruct the 40 sick children, ordinarily under treatment in the hospital, as required by the Board of Education; whether he was aware that the two teachers were estimated to cost nearly £400 a year, or nearly 12 per cent. of the entire expenditure of the hospital for the year 1920; that the hospital received acute cases only and was not one for incurables; that the average number of days each patient was resident is 218; and that, though some of the children remained as long as two years, they were not, nor were any of them, in a fit condition, often for weeks together, to receive sustained instruction and were at times too ill to receive instruction at all; and whether he would reconsider the circumstances of the case with a view to enable the hospital to again receive children of school age for treatment without imposing on the governing body any conditions as to the education of these suffering children in view of the present need for economy.—Sir A. MOND replied: There has been no withdrawal by the Ministry of their approval of this hospital. That approval has throughout been limited, in accordance with arrangements made with the Board of Education, to the treatment at the cost of local authorities of children who are not of school age on account of the refusal of the governing body of the hospital to provide facilities for the education of children of school age. I am advised that education of a suitable kind is essential for tuberculous children who need prolonged institutional treatment, and in the circumstances I could not properly approve of children of school age being sent by local authorities to this hospital for treatment, unless adequate educational facilities are provided.

THURSDAY, MAY 4TH.

Treatment Clinics for Pensioners.

Captain BOWYER asked the Minister of Pensions whether he was aware of the great pain which was in many cases being caused to disabled ex-Service men living in and around Wolverton from being compelled to travel into Northampton and back again when local treatment was available for their cases: and would he in future arrange local treatment whenever possible, and thus save not only the time of the ex-Service man but also the expense of railway fares, as well as obviating the discomfort of the journey.—Mr. MACPHERSON replied: Ministry clinics have been established at various towns throughout the country in order to provide the best specialised treatment for men living in the neighbourhood. Having regard to the comparatively small number of men at Wolverton requiring treatment there is nothing to be gained by entering into a general local arrangement in preference to utilising the special facilities at the Northampton clinic. I do not accept the suggestion that great pain is inflicted on men by the journey to this clinic, and if the hon. and gallant Member has knowledge of any such case I shall be glad if he will let me have particulars.

Blind Pensioners.

Mr. GILBERT asked the Minister of Pensions approximately the number of blind pensioners for which his department was liable; whether any arrangements were made with St. Dunstan's or other similar institutes to deal with these most unfortunate cases; whether his department made annual grants to such institutes; and could he make any general statement as to how this class of pensioner was dealt with and helped by his department.—Mr. MACPHERSON replied: There are approximately 1550 blinded officers and men receiving pensions from my department, all of whom have been to St. Dunstan's (or in Scotland to Newington House, Edinburgh), where they are trained in new occupations suitable to their condition before returning to their homes. After their return the institutions mentioned continue to keep in touch with them by means of local representatives. These institutions are maintained out of private funds, and consequently the men have the advantage of receiving allowances at the maximum rate of pension instead of the smaller allowances which would otherwise be payable.

Illicit Sale of Cocaine.

Mr. RAMSDEN asked the Secretary for the Home Department whether his attention had been called to the sentence of six months' imprisonment recently passed on a coloured vendor of cocaine, whose methods of concealment showed extreme ingenuity, and whose moral character would appear on investigation to have been most unsavoury in other respects; whether this was the maximum sentence; and whether he had inquired, and, if not, whether he would inquire, from the London stipendiaries if they considered their powers of punishment were sufficient to really check this illegal drug-selling.—Mr. SHORTT replied: Yes, Sir, my attention has been called to this case. Six months is the maximum sentence of imprisonment that can be imposed on a first conviction, but it is not the maximum penalty, as a fine up to £200 can be imposed as well. The working of the present Regulations, which only came into force on Sept. 1st last, is being carefully watched by my department, who are in close touch with the police authorities, and if it appears that the present powers are insufficient I should not hesitate to come to Parliament for further powers. It is clear, however, in view of the international character of the traffic, that it can only be effectively dealt with by international coöperation, and the whole question of the measures necessary to cope with the traffic has been engaging the attention of the Advisory Committee appointed by the League of Nations. Their proposals when received will be carefully considered.

Women Students and the London Hospital.

Mr. THOMAS GRIFFITHS asked the Prime Minister whether, in view of the facts that a Government grant of £30,000 a year had been made to five London hospitals where clinical units had been set up, that a Government grant of £16,000 had been promised this year to the London Hospital in which was included £3000 from the University Grants Committee, and that the last-named hospital now excluded women medical students altogether, and of the remaining four one only admitted them without restrictions, it was the intention

of the Government to intervene in any way so that those who accepted public money should not discriminate against one section of the public which contributed the money.—Sir A. MOND replied: The question of the admission of students to university institutions is essentially one for the discretion of the university authorities, with whose autonomy the Government desire to interfere as little as possible. As my right hon. friend explained in his reply on April 2nd to the hon. and gallant Member for Central Wandsworth (Sir J. Norton-Griffith), the Government have no information indicating that the facilities for university education in medicine of qualified women are inadequate. I would remind the hon. Member that admission to the London (Royal Free Hospital) School of Medicine, which is also grant-aided, is wholly confined to women.

Self-disinfection and Venereal Disease.

Sir J. D. REES asked the Minister of Health how many county, county borough, and borough councils had adopted the immediate self-disinfection policy of the Society for the Prevention of Venereal Disease.—Sir A. MOND replied: Since no grant is payable in respect of measures in pursuance of the policy mentioned by my hon. friend I have no special information as to the extent to which that policy has been adopted, but, so far as I am aware, it has never even been claimed that more than an extremely small proportion of the local authorities concerned have adopted it.

MONDAY, MAY 8TH.

Scientific and Medical Imports from Germany.

Mr. BALDWIN (President of the Board of Trade), replying to Mr. KILEY, said the following statement showed the quantities (in certain cases) and values of various descriptions of scientific instruments registered during the six months ending March 31st, 1922, as imported into the United Kingdom, consigned from Germany. The figures were provisional and subject to slight amendment on final examination of the returns. Similar particulars for the corresponding period of 1913–14 were not available. It was not possible to show separately the quantities in value of spectacles or spectacle accessories:—

Description.	Quantity.	Declared value.
Scientific instruments and appliances (except electrical). Dental, surgical, medical, and veterinary instruments and appliances (except optical)—		£
Instruments	—	4,088
Appliances, &c.	—	3,750
Optical instruments and appliances. Lenses, prisms, &c., optically-worked, mounted or unmounted (including those imported with complete instruments)..	1,035,208	29,706
Bodies for telescopes, microscopes, and other instruments for holding lenses	375,088	15,624
Other scientific instruments and appliances—		
Precision balances	—	2,987
Mathematical instruments ..	—	2,372
Electrical goods and apparatus, electrical instruments (other than telegraphic and telephone)—		
Scientific	—	1,081
Electro-medical apparatus and X ray tubes, wireless valves, and vacuum tubes	—	815

The London Hospital Appeal.

Captain WEDGWOOD BENN asked the President of the Board of Trade whether his attention had been called to a financial appeal which had been issued on behalf of the London hospitals alleging, among other reasons, for their poverty the high cost of drugs; and whether drugs used for hospitals were subject to the duties imposed by the Safeguarding of Industries Act.—Mr. BALDWIN replied: I am aware of the appeal referred to. A certain number of medicinal chemicals used in hospitals are subject to duty under the Safeguarding of Industries Act and in this connexion I would refer to the answer which I gave to the hon. Member for the Western Isles on Oct. 31st last.

TUESDAY, MAY 9TH.

The Lunacy Bill.

The Lunacy Bill to amend the law relating to Chancery lunatics, which has already passed through all its stages in the House of Lords, was read a second time. This measure substitutes a single Master in Lunacy and an assistant for two Masters in Lunacy as at present. Under Clause 2 the provisions of sections 133 to 143 of the Lunacy Act, 1890, relating to vesting and other orders as amended by subsequent enactments, are declared to apply to criminal lunatics. The remainder of the Bill deals with legal matters affecting the property administration of lunatics.

R.A.F. Recruits and Vaccination.

Mr. BROMFIELD asked the Secretary of State for Air if he was aware that fit men were being refused admission to the Royal Air Force solely on the ground that they would not consent to be vaccinated; and if he would instruct officials no longer to treat the exercise of a legal right as a disqualification.—Captain GUEST replied: The recruits are not admitted to the Royal Air Force if they do not wish to be vaccinated. No man is forced to be vaccinated, but, on the other hand, it is not possible to undertake the responsibility of accepting men for service who state that they are unwilling to be protected against small-pox infection, especially as enlistment in the Royal Air Force involves an obligation to proceed, if required, to eastern countries, where unavoidable exposure to infection is common.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, May 18th.—List of probable papers: Prof. T. B. Wood, F.R.S., and J. W. Capstick, D.Sc.: The Progress of Metabolism after Food in Swine. C. G. Lamb: The Geometry of Insect Pairing (communicated by Prof. J. S. Gardiner). G. E. Briggs: Experimental Researches on Vegetable Assimilation and Respiration. XV. The Development of Photosynthetic Activity during Germination of Different Types of Seeds (communicated by Dr. F. F. Blackman.) G. E. Briggs: Experimental Researches on Vegetable Assimilation and Respiration. XVI. The Characteristics of Sub-normal Photosynthetic Activity resulting from Deficiency of Nutrient Salts (communicated by Dr. F. F. Blackman). J. A. Gardner and F. W. Fox: The Origin and Destiny of Cholesterol in the Animal Organism. Part 13. On the Autolysis of Liver and Spleen (communicated by Sir W. Fletcher).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, May 16th.

GENERAL MEETING OF FELLOWS: at 5 P.M. Ballot for election to the Fellowship.

MEETINGS OF SECTIONS.

Wednesday, May 17th.

HISTORY OF MEDICINE: at 5 P.M.
Annual General Meeting:
Election of Officers and Council.

SURGERY: at 5.30 P.M.
Annual General Meeting:
Election of Officers and Council.

Thursday, May 18th.

DERMATOLOGY: at 5 P.M. (Cases at 4.30 P.M.)
Annual General Meeting:
Election of Officers and Council.
Cases: The following will be shown by:—
Dr. G. Pernet: Rodent Ulcer of Unusual Type.
Dr. H. W. Barber: (1) Case of Leprosy. (2) Hydroa Æstivale. (3) Lupus Erythematosus showing Result of Treatment.
Dr. Haldin Davis: Mycosis Fungoides.
Other cases will be shown.

Friday, May 19th.

OTOLOGY: at 5 P.M. (Cases at 4.45 P.M.)
Annual General Meeting:
Election of Officers and Council.
Demonstration:
Mr. Wilkinson: A Note on the Resonating System in the Cochlea, with Demonstration of a Model, Illustrating the Action of a Hitherto Neglected Factor.
Cases: Cases will be shown by Sir James Dundas-Grant, Mr. Lionel Colledge, and others.

ELECTRO-THERAPEUTICS:
Annual General Meeting and Annual Dinner at the Langham Hotel, Portland-place, W. 1, at 7.15 P.M.

HARVEIAN SOCIETY OF LONDON.
THURSDAY, May 18th.—4.30 P.M., Clinical Meeting at Paddington Infirmary.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, W.
TUESDAY, May 16th.—3 P.M., Dr. William Bulloch: Tyndall's Biological Researches and the Foundations of Bacteriology. (Tyndall Lecture, I.)
THURSDAY.—3 P.M., Prof. F. Keeble: Plant Sensitiveness. (II.) To Contact and to Chemical Stimulation.
FRIDAY.—9 P.M., Sir William Bragg: The Structure of Organic Crystals.
SATURDAY.—3 P.M., Prof. O. W. Richardson: The Disappearing Gap between the X Ray and Ultra-Violet Spectra. (II.) Photo-Electric Methods.

THE ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.
THURSDAY, May 18th.—7.45 P.M., Dr. O'Connor: Microscopic Demonstration. 8.15 P.M., Dr. Francis W. O'Connor: Some Medical Researches in the Western Pacific, illustrated by Lantern Slides.

LONDON DERMATOLOGICAL SOCIETY, 49, Leicester-square, W.C. 2.
TUESDAY, May 16th.—4.30 P.M., Pathological Specimens, Cases and Clinical Meeting.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, London, W. 1.
WEDNESDAY, May 17th.—7.30 P.M., Annual Exhibition of Microscopic Pond Life.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: May-June, 1922.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, May 15th.—2 P.M., Dr. Hinds Howell: Outpatient Clinic. 3.30 P.M., Dr. James Taylor: Nervous Diseases of Early Life.
TUESDAY, May 16th.—2 P.M., Dr. Grainger Stewart: Outpatient Clinic. 3.30 P.M., Dr. James Taylor: Myopathies.
WEDNESDAY, May 17th.—2.15 P.M., Dr. Risien Russell: Clinical Demonstration.
THURSDAY, May 18th.—2 P.M., Dr. Kinnier Wilson: Outpatient Clinic. 3.30 P.M., Dr. Kinnier Wilson: Involuntary Movements.
FRIDAY, May 19th.—2 P.M., Dr. Gordon Holmes: Outpatient Clinic. 3.30 P.M., Dr. James Collier: Cerebral Vascular Disease.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
NEURO-PATHOLOGY.—Dr. J. Godwin Greenfield.
MONDAY, May 15th.—12 noon, Cerebro-spinal Fluid. I. Physiology.
THURSDAY, May 18th.—12 noon, Cerebro-spinal Fluid. II. Pathology.
ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM.—Dr. Hinds Howell.
TUESDAY, May 16th.—12 noon, Development of Spinal Cord—Elements of Nervous System—General Arrangement of Grey and White Matter.
FRIDAY, May 19th.—12 noon, Segmental Arrangement—Roots—Sympathetic System.
WEDNESDAY, May 17th.—Demonstrations by Dr. Adie on Methods of Examining Cases of Nervous Disease, and Interpretation of Physical Signs.
An inclusive fee of £10 10s. will be charged for the whole course. Any part of the course may be taken separately at a special fee. A special arrangement can be made for those unable to attend the whole course. For details with regard to these special arrangements, application must be made to the Dean. Fees should be paid to the Secretary of the Hospital at the office on entering for the course.
C. M. HINDS HOWELL, Dean of Medical School.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, Marylebone, W.
MONDAY, May 15th.—5.30 P.M., Dr. P. Hamill: Minor Discomforts of Heart Disease and their Treatment.
Daily, 10 A.M. and 2 P.M., Visits to In-patients and Out-patients.

FELLOWSHIP OF MEDICINE POST-GRADUATE LECTURES.
At the Royal Society of Medicine Lecture Hall:—
TUESDAY, May 16th.—5 P.M., Sir Thomas Horder: The Clinical Significance of Hæmoptysis.
At the Western General Dispensary, Marylebone-road, N.W.:—
MONDAY, May 15th.—4.45 P.M., Dr. Bernard Myers: Lecture Demonstration on Gastro-Intestinal Affections in Children.
THURSDAY.—4.45 P.M., Dr. T. Jockes: Demonstration of Pathological Specimens and Bio-Chemical Methods in Gastro-Intestinal Affections.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, May 15th.—5 P.M., Dr. Saunders: Pneumonia in Childhood.
TUESDAY.—5 P.M., Dr. Pernet: Drug Eruptions.
WEDNESDAY.—5 P.M., Dr. Grainger Stewart: Methods of Examinations of the Nervous System.
THURSDAY.—5 P.M., Dr. Snowden: The Psychoneuroses.
FRIDAY.—5 P.M., Dr. Pritchard: Clinical Lecture.
SATURDAY.—2 P.M., Dr. Owen: Medical Out-patients.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION St. James' Hospital, Ouseley-road, Balham.
THURSDAY, May 17th.—4 P.M., Sir John Collie: Medico-Legal Pitfalls.

NORTH-EAST LONDON POST-GRADUATE COURSE, Prince of Wales's General Hospital, Tottenham, N. 15.
MONDAY, May 15th.—10.30 A.M., Dr. A. J. Whiting: Polygraphic Study of Heart Disease. 11.45 A.M., Mr. W. E. Tanner: Shock and Hæmorrhage. 4.30 P.M., Sir Thomas Horder: Clinical Types of Arthritis.
TUESDAY.—10.30 A.M., Mr. T. H. C. Benians: Vaccine Therapy. 11.45 A.M., Mr. J. H. Evans: Swellings of Scrotum. 4.30., Mr. W. E. Tanner: Operative Treatment of Fractures.
WEDNESDAY.—10.30 A.M., Dr. J. B. Alexander: Asthmatic Cases. 11.45 A.M., Mr. C. H. Hayton: Nose and Throat Examination. 4.30 P.M., Dr. Manson-Bahr: Dysentery.
THURSDAY.—10.30 A.M., Mr. E. S. Pierrepont: Teeth and Disease. 11.45 A.M., Mr. H. W. Carson: Carcinoma of Breast Operations: After-results. 4.30 P.M., Dr. F. G. Crookshank: Acute Febrile Maladies.
FRIDAY.—10.30 A.M., Mr. N. Fleming: Diagnosis of Eye Conditions. 11.45 A.M., Dr. Crookshank: Teeth and Disease. 4.30 P.M., Dr. C. E. Sundell: New View of Rheumatism.
SATURDAY.—10.30 A.M., at the London Hospital, Dr. J. Parkinson: The Electrocardiographic Method.
Daily, 2 P.M. to 4 P.M., In-patients, Out-patients, Special Departments, and Operations.

INSTITUTE OF PATHOLOGY AND RESEARCH, St. Mary's Hospital, W.
THURSDAY, May 18th.—5 P.M., Major-General Sir W. B. Leishman: Enteric Fevers in the War.

LONDON HOSPITAL MEDICAL COLLEGE, Mile End, E. Lectures on Advanced Surgery in the Clinical Theatre.
FRIDAY, May 19th.—4.15 P.M., Mr. Russell Howard: Acute Intestinal Obstruction.

LONDON LOCK HOSPITAL, 91, Dean-street, W. 1.
MONDAY, May 15th.—5 P.M., Mr. Charles Gibbs: Treatment of Syphilis.
TUESDAY.—2.30 P.M., Mr. McDonagh: The Basis of Chemo- and Immune-therapy in Venereal Diseases. 5 P.M., Mr. F. Juler: Syphilitic Affections of the Fundus and Orbit.
THURSDAY.—2.30 P.M., Mr. W. V. Corbett: Practical Demonstration of Tests used in Syphilis and Gonorrhœa. 4.30 P.M., Mr. Swift Joly: Treatment of Chronic Gonorrhœa in the Male.
FRIDAY.—4 P.M., Mr. Johnston Abraham: Late Sequelæ of Gonorrhœa in the Female.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street, Whitworth Park.
THURSDAY, May 18th.—4.30 P.M., Dr. S. Herbert: Hypnotism and Psycho-Analysis.

Appointments.

YOUNG, W. A., M.B., B.S., has been appointed Pathologist to the Royal Chest Hospital, City-road, E.C.

Certifying Surgeons under the Factory and Workshop Acts: SPEIRS, H., M.D. Edin., F.R.C.S. Edin. (Melrose); HUGHES, H. L. G., L.R.C.P. Lond., M.R.C.S. (Chagford, Devon).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen, Royal Aberdeen Hospital for Sick Children.—Hon. Jun. P. Hon. Registrar.
Birmingham, Rubery Hill and Holymoor Mental Hospital.—Sen. Third Asst. M.O. £400.
Birmingham University.—Demonstrator of Anatomy. £300 to £400.
Bramshott, Hants, King George's Sanatorium.—Locum Tenens Med. Supt. Ten Guineas per week.
Cancer Hospital, Fulham-road, S.W.—Asst. to Electrical, &c., Dept. £350.
Chesterfield and North Derbyshire Royal Hospital.—Jun. H.S. £175.
Doncaster Poor-law Institution.—Res. M.O. £280.
Dundee Royal Infirmary.—Med. Supt. £1000
Elizabeth Garrett Anderson Hospital, Euston-road.—H.P. Two H.S.'s. Obstet. A. £50. Also Ophth. S.
Gloucester County Mental Hospital.—Temp. M.O. £7 7s. weekly.
Greenwich, Dreadnought Hospital.—H.S. £150.
Grosvenor Hospital for Women, Chelsea.—Hon. Asst. Anæsthetist.
Hampshire County Council.—Asst. M.O.H. £626.
Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—S.
Isle of Man Mental Hospital, Douglas.—Med. Supt. £600.
Liverpool Hospital for Children, Leasowe, Cheshire.—Res. Jun. M.O. £250.
London Jewish Hospital, Stepney Green, E.—Jun. Res. M. and Cas. O. £100.
Manchester, County Asylum, Prestwich.—Asst. M.O. £484 18s.
Manchester, Monsall Fever Hospital.—Med. Supt. £750.
Manchester, St. Mary's Hospitals for Women and Children.—H.S. £100.
Miller General Hospital, Greenwich-road, S.E.—Res. Cas. O. £200.
Plaistow Fever Hospital.—Second Asst. M.O. £200.
Rampton State Institution for Mental Defectives.—Asst. M.O. £300 to £350.
Royal Free Hospital, Gray's Inn-road, W.C.—Asst. P.
Royal Northern Hospital, Holloway, N.—H.S. £150.
St. Mary's Hospital, Paddington, W.—Asst. M.O. for X ray Dept.
Sheffield, Jessop Hospital for Women.—Asst. H.S.'s. £100.
South London Hospital for Women, Clapham Common, S.W.—M.O. in charge of Massage Dept.
Southport General Infirmary.—Jun. H.S. £175.
Stafford Borough.—M.O.H., &c. £700.

Stroud General Hospital.—H.S. £200.
Swansea General Hospital.—H.P. £200.
University College Hospital, Gower-street, W.C.—House Anæsth. and Res. M.O. £150 each.
Westminster Hospital, Broad Sanctuary, S.W.—Asst. H.P. and Asst. H.S. £52.
West Riding of Yorkshire County Council.—Tuberculosis O. £750.
Windsor, King Edward VII. Hospital.—Sen. H.S. and Jun. H.S. £200 and £150 respectively.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments: Cerrig-y-Druidion (Denbigh), Cobham (Surrey), Gnosall (Stafford), and Knutsford (Chester).

Births, Marriages, and Deaths.

BIRTHS.

DAVIES.—On April 26th, at Fedwhir, Ystrad Rhondda, Glam., the wife of Dr. J. P. H. Davies, of a son.
GARDNER.—On May 2nd, at Merton-street, Oxford, the wife of A. Duncan Gardner, M.D., F.R.C.S., of a son.
LEE.—On May 6th, at Cardigan-road, Headingley, Leeds, the wife of Harry Lee, F.R.C.S., of a son.
LEETE.—On Saturday, the 6th May, 1922, at Claremont Nursing Home, Beresford-road, Birkenhead, to the wife of H. Mason Leete, M.D., B.S., M.R.C.S., D.P.H.—a son.

MARRIAGES.

HAIG—TAIT.—On April 25th, at the Parish Church of Etherley, County Durham, William Haig, D.S.O., M.B., C.M., to Christine Jean, elder daughter of the late J. J. and Mrs. Tait, The Fields, Etherley.

DEATHS.

BROWN.—On April 30th, at The Glen, Dore, near Sheffield, Horace George Brown, M.A., M.R.C.S., L.R.C.P.
MACDONOGH.—On May 3rd, William Frederick MacDonogh, M.D., of Twickenham, in his 62nd year.
RAW.—On April 15th, at West-avenue, Hamilton, Ontario, after great suffering, William Edmond St. Michael Raw, M.R.C.S., L.R.C.P., F.S.A., aged 62.
SEXTON.—On April 29th, at Downs Park, Herne Bay, Colonel M. J. Sexton, C.B., M.D., LL.D., A.M.S. (retired).
TIMMS.—On May 5th, at a nursing home in London, Alec Boswell Timms, L.R.C.P. & S. Edin., L.R.F.P.S. Glasg.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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THE INFLUENCE OF THE SANATORIUM ON MEDICINE.

BEFORE the Society of Superintendents of Tuberculosis Institutions on April 24th Dr. S. Vere Pearson delivered the presidential address in which he indicated the place in preventive and curative medicine which sanatoriums enjoy. The chief lesson, he said, which the sanatorium teaches is the essential dependence of curative and preventive medicine upon a readjustment of the ways in which a man lives, from which it will be seen that he was postulating the reception into the sanatorium of patients in the earliest stages of the disease. He alluded to the obvious advantages of sanatorium life in its provision of rest and freedom from anxiety.

The physicians of old were not blind to the ill influences of business and domestic worries upon the sick subject, and it may be doubted whether sanatoriums have here changed medical thought. But we call attention to Dr. Vere Pearson's advocacy of the educational value of sanatorium life, for in this direction the institutions have been of great value. "The sanatorium," he says, "has perhaps influenced medicine up to the present mostly through its insistence on the necessity for clean air, not only in the sick room, whatever ailment inflicts the patient, but also in the workshop and the home; and it is helping to bring home to people that exercise, appropriate to the individual's capacity, in fresh air is essential to health. The endeavours which are being made nowadays to abate smoke and towards the garden city ideal owe a good deal to the educational influence of sanatoriums." The fact that all who leave sanatoriums become prophets in the cause of domestic hygiene, whenever their circumstances allow, is really one of importance.

In the matter of therapeutic progress, Dr. Vere Pearson concluded by citing, as the two most striking advances of the past 20 years emanating from tuberculosis institutions, artificial pneumothorax and the improvement in the treatment of surgical tuberculosis by mechanical devices and splinting.

"A DYNASTY OF DOCTORS."

THERE is a legitimate cause for pride in belonging to a family which has from the latter part of the XVIIIth century to the present day waged successful war with disease. It is fitting, therefore, that Dr. Alexander Maxwell Adams, of Tibshelf, Derbyshire, should have written a medical history of the Adams family under the title of "A Dynasty of Doctors." The progenitor of the family seems to have been one Captain James Adams, who fought at the Battle of the Boyne, received from William III. a grant of land, and settled at Anginloo, in Londonderry. The first of the medical dynasty was Alexander Maxwell Adams (1792–1860) a graduate of Erlangen, and L.M. Edin.—he was a friend of the celebrated anatomist, Dr. Robert Knox, who deserves to be remembered otherwise than in connexion with Burke and Hare. The next member of the family, the eldest son of the preceding (1813–1867), bearing the same Christian names, was a graduate of King's College, Aberdeen, and a diplomate of the Royal Colleges of Edinburgh and Glasgow. He was provost of Lanark, lecturer in midwifery at the Royal Portland School of Medicine, Glasgow, professor in Anderson's University, and held other important medical appointments. His son (1837–1915) and the third Alexander Maxwell Adams, was the father of the author of the "Dynasty." He was a diplomate of the Royal Colleges of Edinburgh and Glasgow, and medical officer of health for Lanark. As a boy he is said to have burst into a room where his parents were sitting with an elderly gentleman, singing the often-quoted rhyme:

> "William Burke and William Hare,
> They cam toddlin' doon the stair
> Wi' a body in a box
> For to sell to Dr. Knox.
> Burke's the butcher, Hare's the thief,
> Knox's the man that buys the beef."

The boy being reprimanded by his mother, the visitor gave him a shilling, saying, "The poor child knows no better." The elderly gentleman was Dr. Knox.

The author of the "Dynasty," the fourth medical man in direct descent, a graduate of Edinburgh, was born in 1863, and spent part of his life abroad, first as a doctor to a tea plantation at Assam, and afterwards in the Gambia, where he made very early inquiry into the connexion between sleeping sickness and trypanosomiasis. The author's son, the fifth to bear the fore-names of Alexander Maxwell, has broken away from the medical tradition, and from his point of view there is much to be said for not allowing god-parents to choose a child's profession. The medical dynasty did not, however, die out. The original Alexander Maxwell had a

second medical son, James (1818–1899), a graduate of King's College, Aberdeen, and diplomate of the Royal Colleges of Edinburgh and Glasgow, and a third medical son, William David (1828–1875), a graduate of St. Andrews. James, the founder of the collateral group, has a son, James Alexander, F.R.F.P.S.G., who graduated M.D.Glasg. with honours, has had a busy and useful career as a surgeon, has given his name to an operation for uterine displacement, and represents the Glasgow Faculty on the G.M.C. Other medical members of the family still living are Dr. Frederick Vasey Adams, F.R.F.P.S. Glasg., second son of Dr. James Adams, Dr. Douglas Kinchin Adams, M.D., B.Sc., Ch.B. Glasg., son of Dr. James A. Adams, and grandson to Dr. James Adams, assistant to the Regius Professor of Medicine, Glasgow University, and Dr. Daniel Vere Maxwell Adams (1872), M.B., Ch.B. Edin., half-brother of the author, who is surgeon to the Lockhart Hospital, Lanark, and holds many local medical appointments. Dr. Adams completes his interesting chain of small biographies with those of his two brothers-in-law, Dr. Claude St. Aubyn Farrer, Dr. Gerald Irving Moriarty, M.B., Ch.B. Edin., and his grand-uncle, Dr. James Cornwall, M.D. Edin., F.R.C.S. Edin., bringing the genealogy up to date in a manner appropriate to the spirit of the times by including an account of a lady doctor, Dr. Margaret McVey, M.B., Ch.B. Glasg., now married, niece of Dr. James A. Adams, and granddaughter of the late Dr. James Adams. Apart from the intrinsic interest in the medical lives recorded, the biographies contain allusions, as has been indicated, to many subjects of diverse nature; for instance, Lister as a young man, the use of oil lamps for street lighting, the pursuit of a medical education under difficulties, Dr. Pritchard the poisoner, and the appearance of the banshee. The records have been reprinted from the *Hamilton Advertiser and County of Lanark News.*

THE NURSING OF PATIENTS WITH ENURESIS.

IN the *Nursing Times* of April 29th a correspondent engaged in the difficult task of nursing a case of cerebral hæmorrhage in a house with an inadequate supply of hot water and other conveniences, recommends a device which she has found convenient and practical. The patient is placed upon a circular air-cushion, underneath which is a photographic tray large enough to clear the hole in the centre of the cushion, so that the edges of the tray are well protected by the rubber. A folded napkin laid over the vulva is directed down into the tray, well under the buttocks. The urine passed drains into the tray, and the napkin can easily be changed as soon as soiled. This is said to save discomfort to the patient, as her back is kept perfectly dry, and to the nurse it saves the constant changing, washing, and drying of innumerable sheets. The gaps made under the patient's back by the air-cushion are filled in with pillows, and one is also required under the knees.

THE ETERNAL VAGRANT.

AN important conference has just been held at Lewes of representatives of board of guardians in East Sussex on the question of vagrancy. The county of Sussex was one of the first to adopt the way-ticket system, by which the tramp in his wanderings up and down the country could secure food by producing his ticket at specified workhouses, thus having no excuse to beg. Uniformity in the whole area comprised in the scheme is, of course, desirable, and each union should coöperate. Some members of boards of guardians, however, have seized upon the scheme as an excellent means of providing a cut in expenditure and have induced the boards to withdraw. But the conference decided to continue the scheme as adopted in 1907, that boards of guardians be requested to ask the workhouse masters to administer it, and that with the approval of the Ministry of Health the pooling system to cover the cost, based on the assessable value of the unions coöperating—a war-time provision—be discontinued. The conference was fortunate in having Mr. J. Stewart Oxley, an inspector of the Ministry of Health, in attendance. He said the Ministry attached considerable importance to the vagrancy question. The figures for Sussex were very similar to those of the whole of England. There had lately been a great increase in the numbers of vagrants; on April 1st, 1921, the number was 5400, and in July of the same year the figure had risen to 8000. The highest number was on Sept. 17th last, when there were 9000 casuals throughout England. On Feb. 11th this year the figure had dropped to 6800. Mr. Oxley deplored the idea of unions holding aloof from the scheme—the more so as Sussex was the pioneer county in its adoption. Everyone will approve the decision to continue the scheme in East Sussex, and although West Sussex was not included in the conference it will be interesting to recall the results of the working of the way-ticket system there. In 1907, when the scheme first came into operation, no fewer than 19,599 tramps passed through the casual wards. This figure fell by leaps and bounds, and in 1919 the tramps only numbered 1729. The smaller the number of tramps in the lanes the better is it for the countryside.

PUBLIC HEALTH IN BIHAR AND ORISSA, 1920.

(*Concluded from p. 928.*)

Health of the Prison Population.

THERE was a considerable improvement in the health of the prison population in Bihar and Orissa[1] during 1920, which averaged 7845, as compared with 9763 in the previous year. The ratios of admission to hospital, average daily sick and mortality, were 885·6, 42·1, and 27·0 per 1000, compared with 1222·2, 48·0 and 43·6 in 1919. The mortality was high at Chapra (81·6), but 18 out of the 20 deaths occurred in prisoners who were in bad or indifferent health on admission to prison, for which hookworm infection was chiefly responsible. At Hazaribagh the death-rate was 57·9, as compared with 127·6 in the previous year. Cholera, dysentery, and malaria were much less than in 1919, the admissions to hospital having been 1·9, 126·5, and 193·4 for these diseases respectively, against 5·7, 193·2, and 304·6 in 1919. Great efforts were made to combat dysentery, so frequently a scourge in prisons: routine inspection of the stools of new arrivals, routine treatment by "vaccine," strict segregation of cases "until six weeks after their stools were normal," and admission to hospital of every prisoner passing mucus, however slight—these measures gave excellent results. The statistics for Bhagalpur Central Jail are very instructive: in 1918 there were 628 dysentery admissions to hospital, with 33 deaths; in 1919 (January to June) 222 (13 fatal): a strenuous campaign was commenced in May, the admissions falling to 59 for the second half of the year, and numbering only 118 throughout 1920, no case being fatal. Pulmonary tuberculosis was also much less prevalent, the admissions and deaths numbering 78 and 28, as compared with 145 and 41 in the previous year. At Chapra over 50 per cent. of the prisoners were found to be infected with hookworm. Energetic action was taken, bowel disease almost eliminated, and the general health markedly improved. Influenza was less than in 1919, causing 25 deaths, compared with 67 in the former year; a "vaccine" was extensively used as a prophylactic. In Bhagalpur jail no case occurred among the prisoners after the second dose had been given, although the warders became infected until they also were inoculated. Filariasis is prevalent in the south of Orissa, and affects the health of the jail at Puri; 222 prisoners examined showed infection in 24 per cent. Moreover, a large proportion of the jail mosquitoes were found to be infected; wire gauze for windows is not effective, and mosquito-nets are being provided for the prisoners. Routine microscopic examination in the case of all new arrivals in jail will be carried out wherever practicable. The admissions to hospital for dysentery, colitis, and diarrhœa combined fell from 290 per 1000 in 1919 to 195 in 1920. This is ascribed by Major W. Gillitt, C.I.E., I.M.S., Inspector-General of Prisons, who forwards the report, partly to improved economic conditions throughout the province, partly to the adoption of incinerators in jails (instead of trenching, which breeds flies), and partly to water purification by chlorogen or chloride of lime.

Vaccination.

From the report on vaccination[2] in this province during the period April, 1920, to March, 1921, it appears that the total number of operations was 1,060,485, compared with 1,054,905 in the previous year, the smallness of this increase being attributed, to a considerable extent, to political propaganda. On the other hand, it is satisfactory to learn that in the Orissa Feudatory States vaccination has steadily developed, and revaccination is practically compulsory. There appears, however, to be a general opinion among the local authorities that opposition to vaccination is more concerned with the age of the child than with the operation itself. In view of this Major Ross advises that the Vaccination Act should be amended so as to raise the vaccination age from six months to one year. He also recommends that vaccination should be free, that it should be generally enforced, and that supervision and control should be delegated to district boards and municipalities and their health officers. There may be some difference of opinion as to the last item of this proposal. As the result of experimental work it was found that the addition of 2 per cent. boric acid improved the quality and purity of the vaccine; and that "a mixture of 5 per cent. starch and 2 per cent. boric acid with 93 per cent. water after boiling can be used to dilute and thicken the crude glycerinated vaccine with good results, and without impairing its potency."

Hospitals and Dispensaries.

The annual returns of the hospitals and dispensaries in Bihar and Orissa for 1920[3] show that, to the 428 institutions

[1] Administration Report on Jails of Bihar and Orissa. Patna: Superintendent of Government Printing. 1921.
[2] Patna: Superintendent of Government Printing. 1921.
[3] Patna: Government Press. 1921.

in existence at the end of 1919, 11 were added during the year; but Col. Austen Smith, C.I.E., Inspector-General of Civil Hospitals for the province, considers that this rate of increase is not satisfactory, as Government gives three-fourths of the original cost, provided the district board finds the annual cost of maintenance. He is also of opinion that the establishment of local dispensaries in rural areas is to be preferred to the system of travelling dispensaries. A total of 3,851,953 persons received treatment in all classes of hospitals and dispensaries throughout the province in 1920, of whom 67,095 were in-patients; in 1919 the respective numbers were 3,728,996 and 65,319. The year was much healthier than 1919, the general death-rate in the province having been 30·9, compared with 40·0. Malaria cases treated rose from 732,428 to 755,423, but the deaths from "fevers" among the general population declined from 970,655 to 762,063. "The prevention of malaria is a matter of education of the people. . . . The problem is being dealt with as far as possible, but until the people understand, it is a difficult one." With regard to hookworm disease, "to ensure success we must change the habits of the people, and insist on the use of suitable latrines and the wearing of shoes." Colonel Austen Smith refers to the large and gratifying increase in "miscellaneous receipts" for the maintenance of hospital and dispensary work in the province. The Maharani Saheba of Bettiah Raj contributed Rs.114,000 to the Bettiah King Edward Memorial Hospital, and the Raja Bahadur of Panchet gave a lakh of rupees towards a new *sadar* hospital at Purulia. A scheme for the improvement of maternity methods and for the welfare of women and children will shortly be started at Patna, under a trained nurse. The establishment of a new medical college at Patna is being actively pushed forward. This is an urgent matter, as so few students can be received at the Calcutta College, where there is room for only 18 from this province; the number seeking admission has lately averaged from 40 to 60. Post-graduate courses for assistant and sub-assistant surgeons are also to be provided as soon as possible.

COMPLAINTS UNDER THE SAFEGUARDING OF INDUSTRIES ACT.

THE Board of Trade announce that they have received formal notices of complaint under the Safeguarding of Industries Act, Section 1, Subsection (5), that (1) boric acid and (2) metaldehyde have been improperly included in the lists of articles chargeable with duty under Part I. of the Act, and that (3) gallic acid, and (4) "R" tannic acid, have been improperly excluded from these lists. These complaints will be submitted in due course to the referee appointed by the Lord Chancellor for the purposes of Section 1, Subsection (5), and any persons directly interested in any of them should communicate immediately with the Assistant Secretary, Board of Trade (Industries and Manufactures Department), Great George-street, London, S.W. 1.

THE PUBLIC SCHOOLS YEAR BOOK.

THIS year-book is the official book of reference of the Headmasters' Conference, and is published by the Year Book Press, Ltd., 31, Museum-street, London, W.C. 1 (price 10*s.* 6*d.*). It forms a useful and comprehensive guide to all matters of educational interest to parents, schoolmasters, and boys, concerning public and preparatory schools, universities, professions, business careers, and public services throughout the British Empire. Of particular interest is the section devoted to colonial openings for public-school boys; and Sir Robert Baden-Powell contributes a special article dealing with "Scouts in Preparatory and Public Schools."

AN ORTHOPÆDIC CLINIC FOR CIVILIANS.

AT the annual meeting of the Glasgow Club of the Chartered Society of Massage and Medical Gymnastics, held on April 21st, an account of the Dumbarton Works clinic was presented by Miss N. Thomson. The Dumbarton Works clinic was started in January, 1921, for the further treatment of accidents to men working in any of the Dumbarton Works associated with the welfare scheme. The idea originated from the need for continued treatment of some soldiers discharged from the Red Cross hospital in 1919. On the suggestion of Colonel Denny, as the number of soldiers decreased the scope of the clinic was extended to include works accidents, and Miss Thomson was appointed to carry it on. The clinic is open two mornings and two evenings a week, and last year 1400 massage treatments were given. The attendance and behaviour of the men were excellent; they seem keen to take advantage of getting treatment in their own town and also to carry on with massage in the evenings, if they still require it, after their return to work. In serious cases Miss Thomson's services are available in hospital or in the patient's own home.

Each patient must procure a doctor's certificate indicating the nature of injury and the treatment required. This certificate must be endorsed at the works in which the man is employed and the expense of the treatment defrayed by the employer. The types of cases treated in 1921 included fractures, muscular strains, and dislocations. The works associated with the welfare scheme are: Messrs. Denny's shipyard and engine-works, Messrs. MacMillan, Messrs. Hardie and Gordon, Messrs. Paul and Co., Messrs. Babcock and Wilcox, and the Dennystown brass works.

Miss Cramond, who read Miss Thomson's communication in her absence, added that this clinic is the only one in Scotland, and commented on the extensive orthopædic work now being done in America. In Dr. R. W. Lovett's clinic there were 25 medical gymnasts, and the work was so organised that the gymnasts specialise in certain conditions, one group treating spinal curvature, another foot deformities, another infantile paralysis, and another, general cases such as rheumatism, fractures, &c.

Mrs. H. Rutherford drew attention to recent articles on orthopædics in THE LANCET, and to the proposed discussion[1] between the Orthopædics Section of the Royal Society of Medicine, and the Council of the Chartered Society of Massage and Medical Gymnastics, with the purpose of securing better coöperation between the medical man and the gymnast.

LONG DISTANCE WALKING.

THE May-day walk from London to Brighton, held this year on April 29th, was marked by three girls and a boy, not officially taking part in the race but covering the course by the same process. The boy only did a part of the journey: this was fortunate, as a distance of 51 miles 1607 yards is far too much for a ten-year-old lad. A Manchester girl, aged 16, did the distance in 12 hours 20 minutes—a remarkable achievement—and thus set up a record in women's sports. Her speed was just over four miles an hour. No doubt she had trained for her task: she finished with a steady stride, declared herself very fit, and her appearance suggested nothing different. Two London girl clerks followed her example, starting practically as they left their office desks, even in high-heeled shoes. Resting for five minutes in every sixty, they did the course in something between 14 and 15 hours. Despite the shoes they showed no signs of physical weariness. The Stock Exchange walk proper presented some sorry aspects. The winner's time was 9 hours 13 minutes 55 seconds, against the record time of 8 hours 11 minutes 14 seconds. It was the third year he had been the winner; he walked well at the finish, though afterwards he expressed himself very doubtful as to competing again. Some of the other competitors arrived "home" in a very exhausted condition; one completed the course with his head down and his arms supported over the shoulders of a man each side of him to save him from falling through sheer exhaustion, and several others were in not much better plight. Physical exercise is an excellent thing, but it should not be carried thus far.

THE DOCTOR'S NAME-PLATE.

THE arguments for and against the display by a specialist of a name-plate announcing his specialty has recently been the subject of discussion in Australian medical circles, and the federal committee of the British Medical Association have been approached for a ruling on the matter. Having regard to existing local custom, the committee concluded that there was no objection to the announcement, provided that the practitioner confined his activities exclusively to the specialty named. In the issue of the *Medical Journal of Australia* dated March 18th it is stated that the earliest expansion of the simple name-plate was in connexion with ophthalmic practice. It was claimed that an ophthalmic surgeon, not being prepared to give medical advice except for affections of the eye or sight, sought to prevent a patient in search of a general practitioner, a physician, or a surgeon from wasting his time. If such chance visits were common, they would undoubtedly constitute a source of annoyance both to the ophthalmic surgeon and to the patient.

In large towns in this country the difficulty apparently does not arise, and specialists, theoretically at least, see no patients except through a general practitioner. But in smaller towns a descriptive epithet such as "ophthalmic surgeon" may be seen on a name-plate. One inconvenience of admitting any designation other than a general one is that a "specialty" is difficult to define. A laryngologist, an otologist, or an endocrinologist might conveniently so describe themselves, but would those interested in diabetes or pulmonary tuberculosis be content to label themselves respectively as specialising in diseases of metabolism and diseases of respiration, descriptions which would convey little to the lay public? Skin and venereal specialists would hardly add to their popularity by a label. The subject bristles with difficulties if any departure from the usual dignified but uninformative name-plate be admitted.

[1] THE LANCET, March 18th, p. 545.